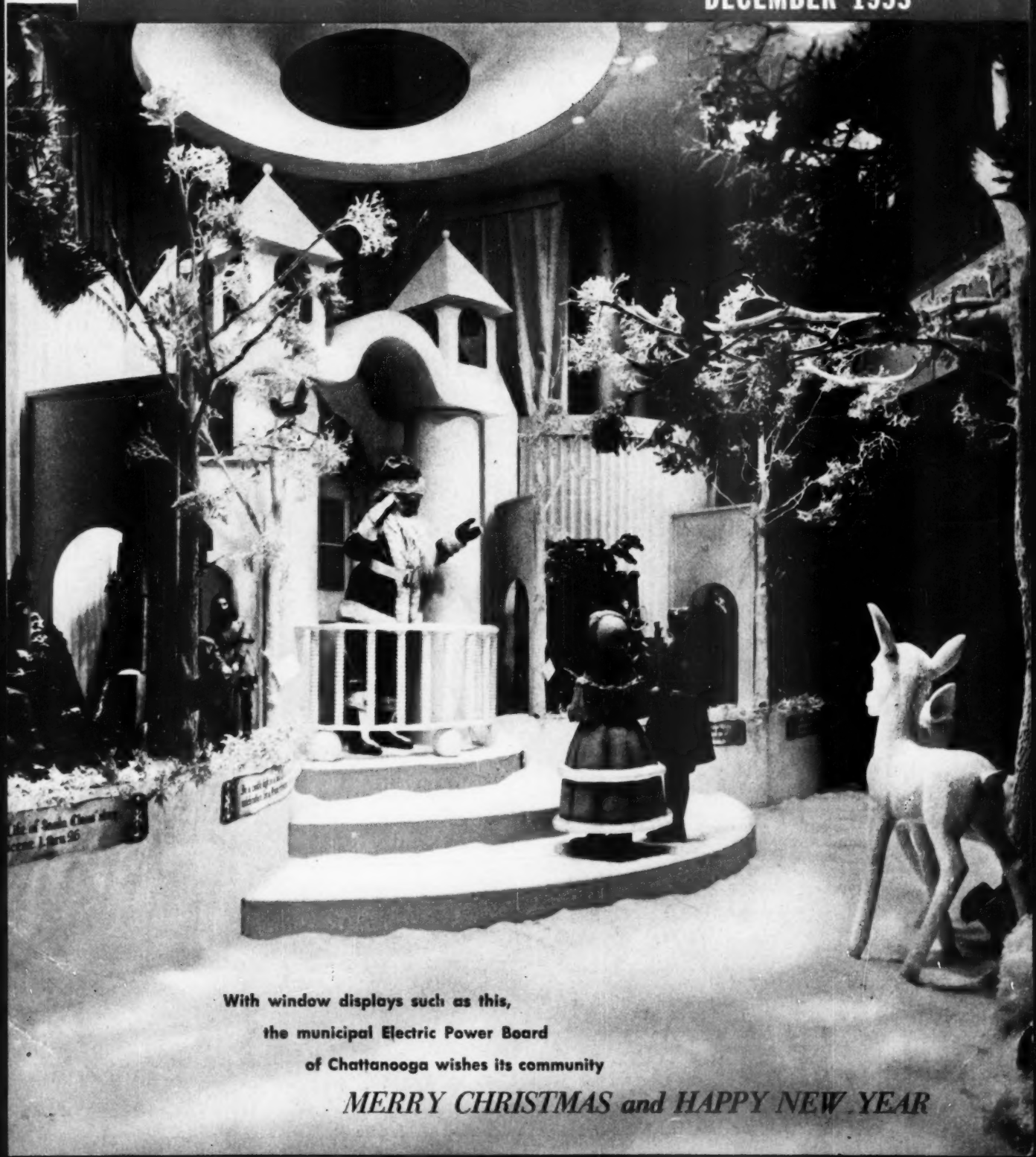
The American City

DECEMBER 1953



With window displays such as this,
the municipal Electric Power Board
of Chattanooga wishes its community

MERRY CHRISTMAS and HAPPY NEW YEAR

Texaco gives 4-way service on West Hartford streets

ARMOR-COATING

SURFACE-TREATMENT

ASPHALT PENETRATION MACADAM

HOT-MIX ASPHALTIC CONCRETE

To assure adequate surfaces for all its streets at minimum cost, West Hartford, Conn. employs four different types of Texaco Asphalt surfacing.

Lightly traveled streets, for example, have gravel surfaces treated with a Texaco Medium-curing Cutback Asphalt, then covered with sand and dragged.

These surface-treated streets eventually are armor-coated to give them longer life under increased traffic. This calls for an application of one of the Texaco Rapid-curing Cutbacks, which is covered with a layer of ½-inch stone chips.

Where a more durable pavement is required, a Texaco Asphalt Macadam wearing surface is constructed on a gravel base. Hot asphalt cement is applied by pressure distributor truck to a compacted layer of broken stone in asphalt macadam surfacing.

On this city's busiest thoroughfare, North Main Street, traffic is served by a resilient, heavy-duty Texaco Asphaltic Concrete pavement, capable of absorbing punishing impact for years with a minimum of upkeep.

The four types of Texaco Asphalt construction so effectively used on West Hartford's streets illustrate the variety of ways in which Texaco Asphalt Cements, Cutback Asphalts and Slow-curing Asphaltic Oils help city officials solve the paving problem. Helpful information regarding all of these types is supplied in a pair of illustrated booklets, which our nearest office will be glad to send you.

For all surface-treatment, armor-coating and asphalt macadam work, Texaco Asphalt products are applied by Ford Brothers, Inc., New Haven, Conn.

THE TEXAS COMPANY, Asphalt Sales Dept., 135 E. 42nd Street, New York City 17

Boston 16 Chicago 4 Denver 1 Houston 1 Jacksonville 2 Minneapolis 3 Philadelphia 2 Richmond 19

TEXACO REG. T. M.

TEXACO ASPHALT

DECEMBER 1953

The American City

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Christmas is a Little Doll

Soon it will be the night before Christmas. And many an excited little girl will be nestled all snug in her bed, to dream of sleigh bells and a cuddly doll beneath a tree.

Santa Claus is such a jolly fellow that he wouldn't want to miss anyone. But it could happen and that would be very sad indeed.

So again this year, telephone girls in many communities will be helping Santa get around. For weeks they have been spending their spare time dressing dolls for little girls.

Throughout the country thousands of other Bell System men and women are collecting baskets of food, candy, toys and dollars for those less fortunate than themselves.

And remembering their co-workers in the armed services with the letters and holiday packages that are so extra-special when a young fellow is far away from home.

To all of you, from all of us in the telephone business, we send best wishes for a joyous and reverent Christmas.

SANTA'S HELPERS

Some of the dolls from telephone employees in just one city. Rag dolls, fancy dolls, teddy bears and pandas — dolls of every kind and shape — to help put joy in many a Christmas stocking.

BELL TELEPHONE SYSTEM

LOCAL *to serve the community.* NATIONWIDE *to serve the nation.*

Our Municipal Notebook

Municipalities Gain By Putting Idle Funds Into U. S. Securities

COLUMBIA, S. C., is earning about $6,500 a month by keeping 90% of its cash assets in investments, according to the Municipal Finance Officers Association. Anticipation is that the current fiscal year will see more than $50,000 coming in from that source. The sum is about equal to the revenue that a one and one-fourth mills property tax would yield.

For the fiscal year ending June 30, Columbia earned a total of $23,240.69 by keeping all idle funds invested in U. S. securities. Such an investment is made possible through the city's accounting control device of a single, central banking fund against which expenditures of the various operating funds are charged.

Other municipalities that have turned to putting idle funds into federal government securities have been El Segundo, Calif., and Peabody, Mass. El Segundo bought $298,377 worth of 90-day U. S. treasury bills. Peabody bought $540,000 U. S. treasury bills dated July 2 and maturing October 1. The net cost to the city was $537,134, which meant a $2,966 gain in three months.

The bills were bought at Peabody from funds which were reserved for a new school project and which would not be needed for the 90 days until the securities matured. A law in Massachusetts allows 80% of idle funds to be invested.

For our world:
real progress towards just and enduring peace;

For our nation:
increased welfare and prosperity, shared by all;

For our cities and towns:
continued advance in efficient administration and in well-planned public improvements—

These are the earnest wishes of THE AMERICAN CITY for this Christmas season and for happy years to come.

Planning Must Not Stop At Treatment of Symptoms

A SENSE OF BELONGING to a community is essential to man, not only to organizing his life for his physical survival, but to his spiritual well-being. Yet within the urban society which has grown up around man, he frequently loses his ability to relate himself to his community.

The breaking down of this relationship manifests itself in slums, blight, delinquency. The stark reality of these problems has given impetus to planning programs. But these are symptoms. Planning must not stop at treatment of symptoms.

A much greater challenge lies in combination of the human resource in working toward a physical community pattern within which an individual may not only retain his personal identity, but, having done so, may increase his productivity with respect to the community at large—the nation—ONE WORLD.

—From exhibit prepared by students at the Cranbrook Academy of Art, under the direction of Robert Snyder and displayed at the National Planning Conference in Detroit, October 1953.

EDITORIAL NOTE: See the front cover of THE AMERICAN CITY for November 1953.

Greetings to City Administrator Luther H. Gulick

The APPOINTMENT as New York's "City Administrator" of Dr. Luther H. Gulick, president of the Institute of Public Administration, and former executive director of the Mayor's Committee on Management Survey, has been widely hailed by citizens and professional organizations as the beginning of an all-out attack on New York's management problems.

The appointment, dependent on a city charter change, was made by Mayor-elect Robert F. Wagner, Jr., shortly after the election of November 3. While the powers of the post do not extend as far as recommended by several independent organizations, it is generally agreed that its estab-

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VOLUME 68, NUMBER 12 •

How to put in a main through 5 feet of frost

Water Department operations in Minneapolis can't be halted just because of winter weather. When a main has to be put in, the ground-breaking is done by a Cat* crawler Tractor with a No. 28 Ripper.

The big yellow machine has the lugging power and traction to rip through rock-hard frost. When this photo was taken it was early March and the frost was down to 5 feet. Working with a single tooth, the ripper prepared the ground for trenching so that the 48-inch pipe could be laid.

The job superintendent reports: "The D8 hasn't been stopped yet, and we'd certainly be stuck without it. Only a fire windrow in the street could put this frozen ground in shape for the trencher if we didn't have the tractor and ripper."

Taxpayers' dollars go farther with Caterpillar equipment. The machines are rugged and simple in construction, built to stay on the job long after they have paid for themselves. They're economical on fuel, using No. 2 furnace oil without fouling. And day after day you find them at work, instead of in the shop.

For money-saving city equipment see your Caterpillar Dealer. He'll be glad to demonstrate the big yellow machines on your own job. And he backs their long, profitable work life with reliable service and genuine factory parts.

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NAME THE DATE... YOUR DEALER WILL DEMONSTRATE

lishment constitutes a significant step forward. One of the recommendations of the Mayor's Committee on Management Survey, whose work Dr. Gulick headed and coordinated, was that a position such as that of City Administrator was urgently needed.

THE AMERICAN CITY heartily extends its congratulations on this fortunate selection of one of the nation's best-qualified municipal authorities and experts, who has been for several decades in the forefront of the struggle for progressive and efficient administration at all levels of government.

Assessed Valuations Show General Increase

ACCORDING to a recent survey by the National Association of Assessing Officers, the assessed valuation of real property has shown a marked increase in 1953. The average increase in assessed valuations reported for 72 jurisdictions with populations over 100,000 was 7.36%. This is compared to increases of 4.6% in 1952; 4.4% in 1951, and 2.9% in 1950.

Erie, Pa., had the largest single increase reported by any jurisdiction (130%). Next followed Dade County (Miami), Fla., with 50%; Akron, Ohio, with 36%; Corpus Christi, Texas, with 35%, and Atlanta, Ga., with 34%.

Boston was the only jurisdiction indicating a decline in assessed valuations—.36%. Several jurisdictions reported losses in land value, but increases in improvements made an over-all increase in the total assessed valuation of real property.

The assessed valuations of counties increased 16.99% on the average in comparison to 4.08% in the cities. New York with a total assessed valuation of $18,952,839,000 had the biggest dollar increase. But this addition of $376,538,000 represented only a 1.98% increase over last year.

City Planning For Reduced Noise

THIS WAS ONE of the leading topics discussed at the National Noise Abatement Symposium, sponsored by nine cooperating organizations, at Technology Center in Chicago, October 23-24.

Dennis O'Harrow, of the American Society of Planning Officials, pointed to several areas in which city planners need help from acoustical engineers. These include general agreement on tolerable limits of noise generation, simple instruments and simplified procedures for measuring noise and some method of prejudging noise generation. The latter step, as envisaged, would aid in determining by looking at a set of blueprints and specifications whether a factory, after it is built, will meet noise standards established for that area.

Mr. O'Harrow also said that the jet airplane represents one of the most discouraging developments to city planners interested in noise abatement because of the much larger area (a factor of 10) that will be blighted adjacent to jet plane airports.

Milwaukee Wins Against Area Redistricting

THE WISCONSIN "areacrats"—the inhabitants of the state's more sparsely settled areas who have been fighting for a redistribution of Wisconsin's Senate seats by area instead of by population—have been defeated by a decision of the Wisconsin Supreme Court. This decision favored the Rosenberry Act of 1951, which makes it obligatory to base reapportionment on population and not area alone.

The up-state voters had recently won an election over the more populous areas, but the Regan Act based on this April 1953 referendum has now been declared invalid by the Supreme Court, which held that it "did not repeal or supersede the Rosenberry law and that the latter remains the same law under which the Secretary of State is required to call for elections until it is replaced by some other valid apportionment."

Due to this decision, Milwaukee, the county with the greatest population, will have eight of the 33 state senate seats, instead of only six to which it would have been entitled if the Regan Act had been upheld.

The question of reapportionment will not come up again at least until it has been decided to amend the constitution of Wisconsin, some time after 1961.

Communities Try Merging Police and Fire Service

SEVEN COMMUNITIES in the United States and Canada have revamped their public protection systems so that the same staff does both police and fire work.

Public Administration Service has begun a year's inquiry into the feasibility of such mergers. The study will involve a close look at those communities with experience in police and fire consolidation, in an effort to find out such things as how well the systems work, whether they could be used in large, industrial cities, what improvements might be made, and how the public has accepted the change.

Most recent adoption of a single safety department came this year in Buena Park, Calif. Timmins, Ont., whose population is 27,743, has such a move under consideration. Other localities having some form of an integrated system are Sewickly Heights, Pa.; Grosse Pointe Shores, Mich.; Huntington Woods, Mich.; Montreal-East, Que.; Oakwood, Ohio, and Sunnyvale, Calif.

Sunnyvale, with a population of about 15,000, is the largest community to have a consolidated system. What used to be the police and fire departments have been joined in a new unit known as the Department of Public Safety. Employees are called public-safety officers. They are supervised by one chief.

Sewickly Heights (population 671) is the smallest community to have integrated its public-safety services. When incorporated in 1935, it kept the combined set-up that had been run by a local association since 1920. Huntington Woods (population 4,919), has also had 18 years' experience with the same personnel serving as policemen and firemen.

Officials of localities that have a single-unit system generally agree that a major advantage is saving money without sacrificing efficiency. Montreal-East, with a population of 5,000, and a business district containing 22 stores and 29 industrial plants, has saved about $26,000 a year by having a combined department.

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National Conference on Government Gets Exceptional Newspaper Coverage

SPECIAL ACCLAIM should go to the *Richmond Times-Dispatch* for the remarkably thorough coverage given to the National Municipal League's National Conference on Government, held in Virginia's capital city, November 8-11. Through news stories, editorials, and the cartoon here reproduced, the people of Richmond were given a comprehensive summary of the objectives and proceedings of an important conference whose main theme was "citizen responsibility."

As pointed out in the accompanying *Times-Dispatch* editorial, a highlight of the conference was the judging of the All-America Cities Awards. A jury of twelve, with George H. Gallup as foreman, devoted several hours to hearing how citizens have met both natural and economic disaster; how improvements in governmental structure have been made against strong opposition from entrenched forces; how blight has been eliminated by urban redevelopment; how many improvements have been undertaken to bring physical facilities into line with the needs of a growing population which insists upon being motorized and airborne. The jury was told also how local revolutions have repudiated rule by racketeers and replaced them with respected public officials; how citizens have fought legislative and court battles as well as intense election campaigns to modernize the schools; how the often-maligned property tax has been modernized; how local party organizations have been reformed; how citizen groups have studied their communities with a thoroughness that gets to the core of basic problems.

This All-America Cities contest, as previously told in THE AMERICAN CITY, seeks to select eleven outstanding examples of energetic, intelligent, effective citizen effort for community betterment. As was the case a year ago, the contest is being sponsored jointly by the National Municipal League and *Look* magazine. The winners of the 1953 awards will be announced early in 1954 by the two sponsors and in THE AMERICAN CITY.

Officers Elected

Elected president of the National Municipal League, to succeed Henry Bruere was George H. Gallup. Re-elected to serve for the ensuing year were John S. Linen and George S. Van Schaick, vice-presidents; Carl H. Pforzsheimer, treasurer; Richard S. Childs, chairman Executive Committee; Charles Edison, chairman of the Council, and Alfred Willoughby, executive director.

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Richmond Times-Dispatch

JOHN STEWART BRYAN, *1871-1945*
DAVID TENNANT BRYAN, *President and Publisher*
VIRGINIUS DABNEY, *Editor*

Monday, November 9, 1953

The Municipal League and Local Government

Richmond's MAYOR HADDOCK said something the other day that ought to be obvious—namely, that no unit of government is more important to the people of a city than the government of their own municipality.

It is unfortunate that so many persons apparently attach relatively little importance to their local government. They get all steamed up over a presidential election, and then greet a local political campaign with an enormous amount of apathy.

This "why-bother-about-local-affairs?" attitude has spawned corrupt political gangs which have given some cities dishonest, graft-filled administrations.

Happily, there are groups—like the Richmond Citizens' Association—which wage battles for good government on the local level. One of the sources to which they turn for advice, information and encouragement is the National Municipal League.

The league serves as a clearing house for the exchange of ideas relating to local government. One of its activities is the holding of an annual National Conference on Government. Fortunately for Richmonders, this year's conference is being held here at the Hotel Jefferson. It began yesterday and will continue through Wednesday. The central theme is "Citizen Responsibility."

At some 30 separate sessions, open to the public, both lay and professional civic leaders will discuss such subjects as "Cities and the National Government," "Effective Citizen Associations," "Women as Campaigners," "Mass Civic Education" and "Youth in Civic Affairs."

One highlight of the conference will be the judging for the All-America Cities Award for 1953. Twenty-two cities, one of which is Petersburg, are seeking the honor, which goes to the 11 communities where intelligent citizen-action has led to outstanding civic progress. Richmond won one of the awards in 1950, and Roanoke was similarly honored last year.

Richmond's L. E. MARLOWE and ED. P. PHILLIPS, chairman and co-chairman, respectively, of the arrangements committee, and the scores of persons who have been working with them, have planned a program with features which should prove interesting and informative to any citizen concerned about local government. If Richmonders attend in large numbers, the beneficial effects should be felt in this city for a long time to come.

Not as Big But Just as Important

New

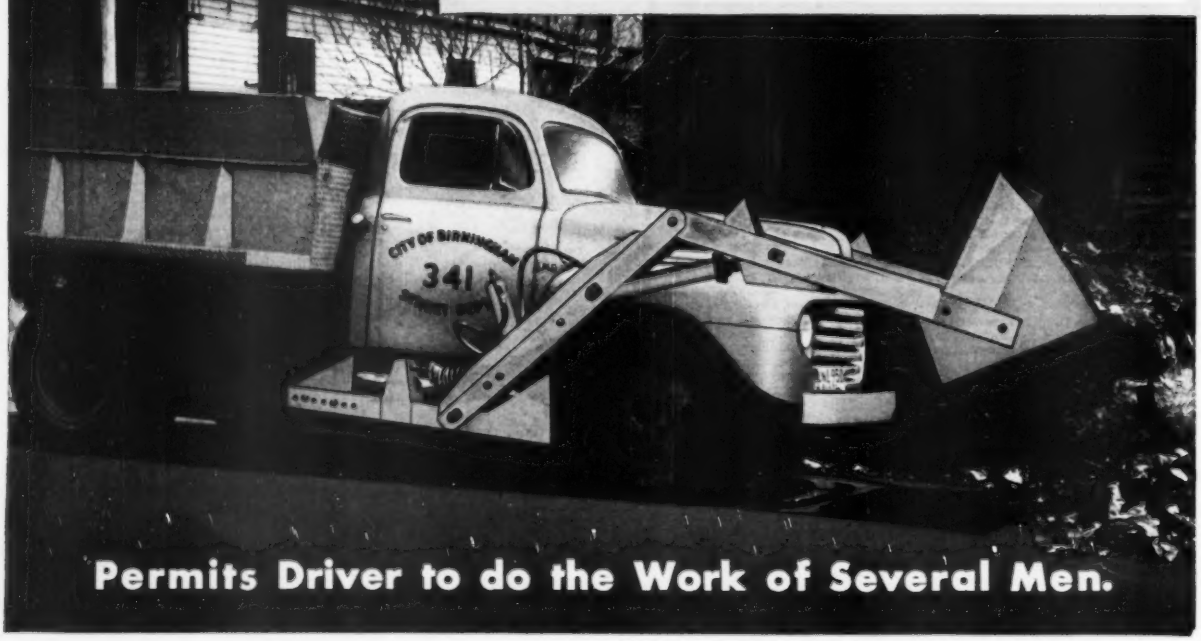
HOLMES OWEN LOADER

REDUCES COST of maintenance on STREETS and PARKS

IMPORTANT municipalities such as the City of Birmingham, Ala.; Cincinnati, Ohio; Kansas City, Mo.; Philadelphia, Pa. and many others are today profitably using Holmes-Owen truck loaders. These key cities have put this equipment into operation because it substantially reduces the cost of many loading and cleaning up operations in the maintenance of streets, parks, airports, etc. This new loader provides a big saving in labor and equipment on such jobs as: picking up the leavings behind a street sweeper, removal of broken and bulky concrete, leaves, trash and other street deposits. It also makes an excellent unit for the removal of snow and handling of ashes, sand, and other stock pile materials.

The versatile, one-man operation of this equipment permits the truck driver to do his own light digging, grading, loading and cleaning-up without additional manpower or the use of more costly equipment. The loader is hydraulically operated, lifts ½ yard per bucket; loads average truck in 4 minutes and can be installed on most 1½ to 2½ ton trucks. See your equipment dealer or write factory for details.

ERNEST HOLMES CO., Chattanooga, Tenn.



Permits Driver to do the Work of Several Men.

Parks and Playgrounds

Neighborhood Recreation Unit Principle Urged for Chicago

SHOWN HERE is a necessary component of Chicago's proposed integrated recreation system, as described in the new report, "Principles for Chicago's Comprehensive Recreation Plan," recently released by the Chicago Recreation Commission.*

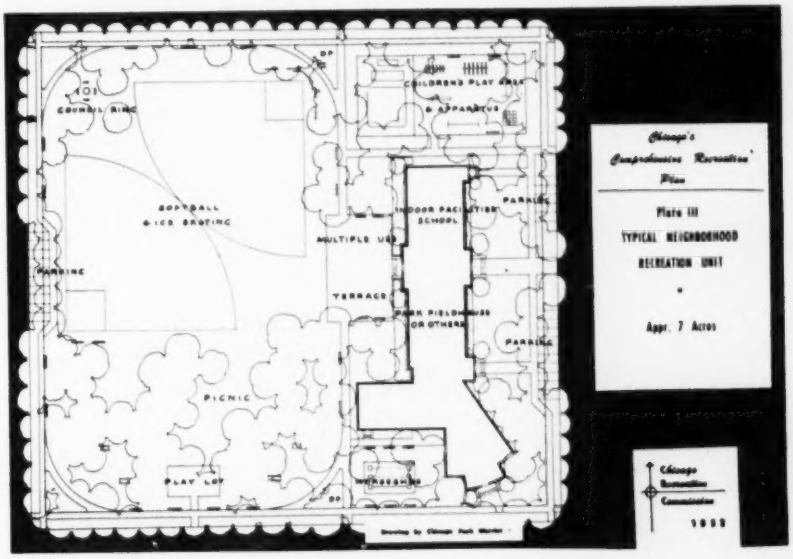
The neighborhood recreation unit, as illustrated, includes as supplementary units the playground and the playlot. One such unit is recommended for each of the 600 neighborhoods in the city. Such units are coordinated with larger community recreation units, serving two to six neighborhoods, and district recreation units.

The report points out the necessity for the flexible design of the facilities to permit their use in one neighborhood by a large juvenile population, and in another by a population largely composed of older persons. This principle has merit also in that the facility will not be likely to lose its practical use with various neighborhoods, and district recreation changes in population.

Five acres represents a minimum site necessary to support essential activities. On a basis of two acres per thousand as a standard, however, the usual maximum neighborhood population of 10,000 would justify a maximum site of 20 acres. Neighborhoods in excess of 10,000 may require more than one neighborhood unit, or supplemental units such as the playground or playlot.

The report also indicates that the location of the site is of paramount importance in the application of a functional concept for recreation. Few neighborhoods are larger than three-eighths of a mile in radius, and neighborhood recreation units should generally be located near the center of neighborhoods to provide safe and convenient access from all homes in the area. The location of neighborhood parks adjacent to schools, playgrounds, or private agencies such as community centers or settlement houses is also important for economy, for pooling of resources, and for maximum use of all buildings and areas.

* Mimeographed report available from Commission at 100 N. Central Park Blvd., Chicago 24, Ill. 57 pp. Appendix.



Public Recreation by Public Demand

FROM an address by Mayor Joseph S. Clark, Jr., of Philadelphia, at the National Recreation Congress, held in that city September 28 to October 2, 1953:

"In a democracy, elected public officials respond, in the long run, to the pressures and demands of the electorate. America's metropolitan areas are committed, through these pressures, to continuation and expansion of governmental activity in the recreation field. No elected official could retrace our steps, eliminate recreation as a major function of local government, and expect re-election. Recreation has become a governmental function not from the consent, but by demand, of the governed."

Three experts on city planning discuss with Susan Lee, second vice-president of the National Recreation Association, some aspects of planning for recreation in the modern city prior to a general session on that subject at the National Recreation Congress. Left to right are: John T. Howard, Associate Professor of City Planning, Massachusetts Institute of Technology; Henry Fagin, Planning Director, Regional Plan Association, Inc., New York, N. Y.; Miss Lee, and Hugh R. Pomeroy, director, Westchester County (New York) Planning Commission.

Concerned about your Municipal Water Supply?

It has been a dry year. Perhaps that's why people everywhere have been concerned about water and municipal water service . . .

What about your municipal water system? Do you have an adequate supply of water on hand at all times for peak load periods? For fire protection? If not, the chances are we can solve all your problems with a Horton® elevated tank.

A Horton elevated water tank of the proper size can increase minimum distribution pressures — reduce pressure variations—provide 24-hour-a-day fire protection and, quite often, can earn the community a better fire insurance rating, leading to lower premiums.

Horton elevated water tanks for municipal water service are built in standard capacities from 5,000 to 3,000,000 gallons. Write our nearest office for estimates or quotations on a Horton elevated tank to improve your municipal water system.

1,000,000-gal. Horton elevated tank with radial-cone bottom installed in the municipal water system at McCook, Nebraska.

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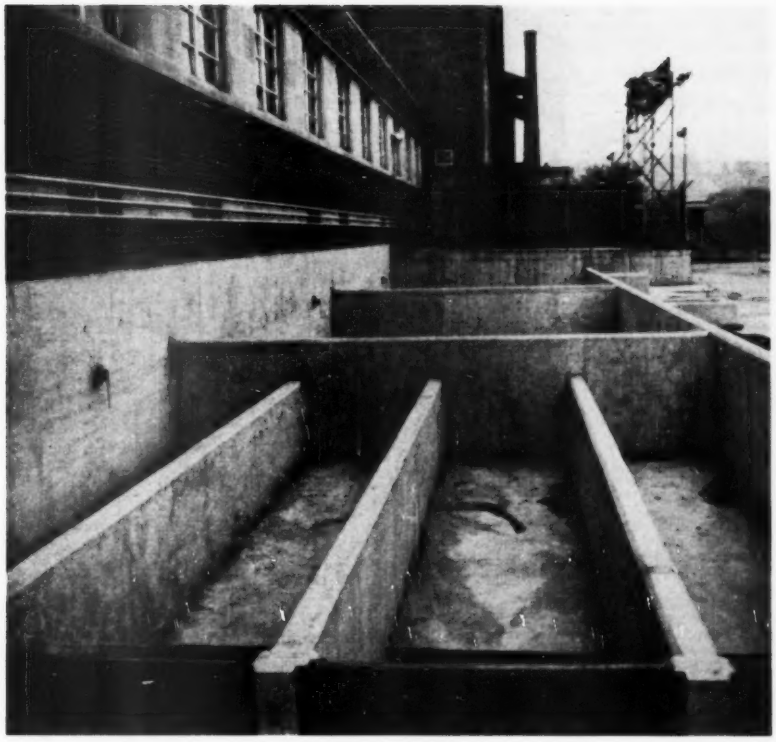
Birmingham 1	1502 North Fiftieth St.	New York 6	3308—165 Broadway Bldg.
Boston 10	1002—201 Devonshire St.	Philadelphia 3	1616—1700 Walnut Street Bldg.
Chicago 4	2127 McCormick Bldg.	Pittsburgh 19	3202 Alcoa Bldg.
Cleveland 15	2236 Midland Bldg.	San Francisco 4	1533—200 Bush St.
Detroit 26	1501 Lafayette Bldg.	Seattle 1	1301 Henry Bldg.
Houston 2	2101 C & I Life Bldg.	Tulsa 3	1625 Hunt Bldg.

Water Supply & Treatment

Modern Connection To Veteran Main

A VETERAN of 132 years of service, a 10-inch main, was connected recently to the most modern of water pipes, a 16-inch U. S. Pipe mechanical-joint, cast-iron pipe. The connection was made in Philadelphia, on historical Chestnut Street, adjacent to Independence Hall, Congress Hall, and the Supreme Court Building. In keeping with the best in modern water-works practice, an A. P. Smith mechanical-joint tapping sleeve and valve was placed on the line; the connection was made without taking the old main out of service. The section of pipe cut out of the veteran by the tapping machine was sound and only slightly tuberculated.



Filter-Sand Storage Space

WHEN THE TIME COMES to wash, regrade, and replace the sand and gravel in the filters, Harry Krum, Allentown's (Pa.) superintendent of water treatment, plans to be ready. The new plant addition is equipped with concrete bins that border the plant. The bins are able to receive the sand and gravel so that it can be regraded conveniently, without damaging the landscaping or interfering with normal operations.

The storage area provides two large sand bins and four small gravel spaces. The sand bins are each approximately 36.67 feet long, 20.25 feet wide, and 3.25 feet deep, and provide storage space for 90 cubic yards. The gravel compartments, fitted with a wood head wall, each measure 26.58 feet long, 4.62 feet wide, and 3.25 feet deep, providing space for about 15 cubic yards.

The new water plant adds 20 mgd (million gallons daily) of capacity to the plant per day. The old plant has a rated capacity of 10 mgd.

"Adams TraveLoader loads rings around anything else," says city engineering department

●The Adams TraveLoader is proving a real boon to loading operations in Clarksdale, Miss., as in many other cities across the nation.

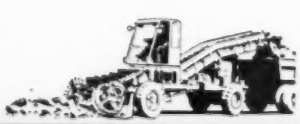
W. R. Ellis, Jr., city engineer, has this to say. "We wish we had bought the TraveLoader years ago. There's just no comparison between its performance and other types of loading equipment. Our trucks average 5-yds. capacity and the TraveLoader loads them in from 50 to 60 seconds." C. F. Vandiver, engineering department foreman, adds, "We didn't know what we were missing. The TraveLoader will load rings around anything else."

The Adams TraveLoader is the fastest and most efficient machine ever designed for loading windrowed or stock-piled material. Ask your Adams dealer for full information on the high-speed, high-performing TraveLoader.

For high-speed snow removal, no other machine equals the Adams TraveLoader—windrowed snow is loaded into trucks at rate of 12 to 15 yds. per minute.

J. D. ADAMS MANUFACTURING CO., INDIANAPOLIS, IND.

ADAMS



Motor Graders TraveLoaders Pull-Type Graders

Two Preferences for Pavement Material

One . . . Air-Entrained Concrete

PAVEMENT laid with air-entraining cement is definitely superior to pavement built with conventional cement, according to L. E. Andrews, regional highway engineer of the Portland Cement Association. Mr. Andrews bases his opinion on 14 years of full-scale tests.

Since the construction of the first test section in New York State, records reveal that millions of square yards of this type of concrete have given consistently good performance. Wherever the amount of air actually entrained has been equal to, or greater than, the minimum amount established for durability, there has been no scaling or disintegration — "D-cracking."

Survey Made

A total of 116 lane-miles of pavement constructed on 14 test projects built during this test period were surveyed by Mr. Andrews: eight in New York, three in Pennsylvania, and one each in Vermont, Maine, and Massachusetts.

In most instances, test roads were built with a wide range of cement variables; some combined with natural cement, and others with fine and coarse-ground cement with and without air-entrainment. The projects, however, were so constructed that the cement was the only variable insofar as possible.

The various air-entraining agents, based on percent by weight of portland cement were: vinsol resin, 0.03%, 0.04%, and 0.05%; codfish oil, 0.03% and 0.05%; beef tallow, 0.05%. Also, small amounts of beef tallow or paraffin were ground with the natural cements used in blends with portland cement.

Results of the Study

The study showed no scaling or D-cracking on any of the sections using air-entraining portland cement, or a blend of air-entraining cement with natural cement. Considerable scaling occurred with other cement variables which included: the blend of portland with natural cement containing fat, 38% of the slabs scaled; nonair-entraining portland cement, 60% scaled; blend of portland cement and natural cement with fatty material omitted, 100% scaled.

The degree of fineness to which the cement is ground apparently has no effect on the performance of the concrete. Nonair-entrained concrete scaled, regardless of the cement fineness, while air-entrained concrete remained scale-free with a similar degree of fineness.

The findings were presented at the 32nd annual meeting of the Highway Research Board, Washington, D. C.

Two . . . Bituminous Macadam

BITUMINOUS MACADAM remains at the top of the list as a low-cost, serviceable paving base for sheet asphalt, in the engineering books of William M. Bolton, city engineer of New Haven, Conn. In this year's street-paving program, the city has taken full advantage of its serviceability and economy.

Much of the work involved replacing pavement that formerly held street-car tracks. Wherever tracks were removed, the city specifications required a 7-inch-thick layer of crushed stone in sizes that vary from 1½ to 2 inches of native gravel and sand which was rolled until properly compressed. This base was then covered with a 3-inch course of bituminous macadam or penetration-type surface. A pavement of 3 inches of asphalt, 1½ inches of binder, and 1½ inches of wearing surface was laid on the bituminous macadam base.

When repaving an entire street on a good, stable subgrade, the crushed-stone base was reduced in thickness to 3 inches and covered with a 3-inch asphalt pavement.

All construction was contracted by C. W. Blakeslee & Sons, Inc., of New Haven, the successful bidder for the 1953 program. Reuben J. Brenner represented the city as division engineer of streets.

A Buffalo-Springfield roller takes over where streetcars once traveled in New Haven.

IN STREET CONSTRUCTION ...LARGE CITIES *and* SMALL find the

SEAMAN

SELF-PROPELLED

MIXER

MOST ECONOMICAL

The SEAMAN MIXER constructs a pavement at a saving in processing costs that ranges up to 50%. And the street or highway — whether of asphalt, oil, tars, asphalt emulsions, soil-cement, or any type of stabilization — is stronger, higher load-bearing and far more resistant to weather-effects. And the SEAMAN processes with a minimum of interference with traffic. Daily production is higher, labor costs are lower.

Here are sound reasons for these benefits —

1. **The SEAMAN method of in-place mixing involves a minimum of materials transport and handling.**
2. **The SEAMAN *corrects* aggregate segregation (the separation of coarse and fines). It blends, mixes and *places* them uniformly so that voids are filled and the coarse material is interlocked and securely mortared-in.**
3. **Daily output is higher. A mile a day can be attained if sections are not too short.**
4. **Only one man to operate.**
5. **The SEAMAN finishes to final grade and crown, with the mix in partially pre-compacted stage, ready for finish rolling.**
6. **Mixes right up to edge of curb.**
7. **One-half of street can be kept open for traffic.**

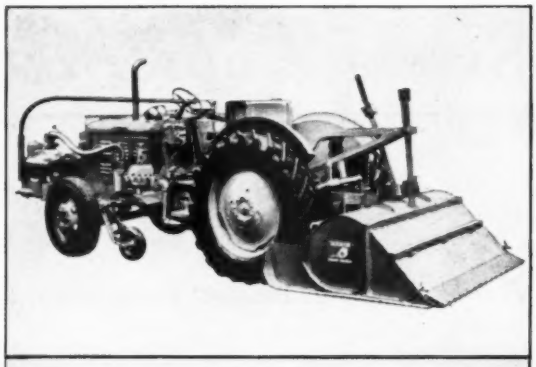
This year, get a SEAMAN in your budget. Get more miles of better streets with your appropriation.

SEAMAN MIXER mixing, blending and placing material, keeping it to crown and grade in partially pre-compacted condition ready for finish rolling.

This Bulletin describes mixing processes with the SEAMAN — and tells *why* a SEAMAN Mix is superior — also gives a complete description of the SEAMAN TRAV-L-PLANT and the SEAMAN Self-Propelled MIXER. Just write for Bulletin TPS.

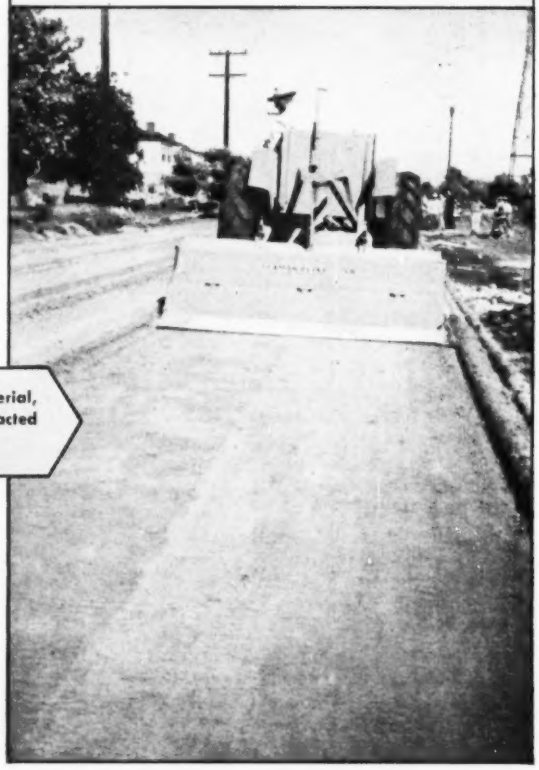
SEAMAN MOTORS *Inc.*

292 N. 25th Street **Milwaukee 3, Wisconsin**



SEAMAN Self-Propelled TRAV-L-PLANT. 7 ft. Mixing Width, Gasoline or Diesel Powered, with 200 G.P.M. pump for highly accurate application of binder.

Reclaiming old bituminous street. At left scarifier rips up pavement. At right SEAMAN Self-Propelled MIXER pulverizes scarified material to reduce it to approximately original aggregate size for reconstruction of pavement.



Highlights of the APWA Congress

Composting Gets a Setback

Economics of process challenged

COMPOSTING, a method of processing wastes for use as fertilizer, is not a solution to a city's refuse-disposal problems, according to Dr. M. S. Anderson of the Agricultural Research Administration of the U. S. Department of Agriculture.

Speaking at the APWA Congress at New Orleans, October 27-29, he stated that the cost of producing a ton of compost, by a high-speed method still under development, ranges between $5 and $15; it is $15 by a process developed in California. To this sum must be added the cost of conditioning, transportation, and marketing.

Markets are limited. "The general farm market is economically hopeless. The home garden demands are not great and, at best, are seasonal," Dr. Anderson further explained.

Composting can dispose of only the organic portion of the refuse. Paper must be separated since the cellulose produces a detrimental effect on the soil. The physical separation of this material, requiring much manual labor, remains a stumbling block to its successful application.

Nevertheless, research on composting is continuing.

Dr. John Snell, head of the civil engineering department at Michigan State College, outlined the college's basic program of compost research. He expects that it may eventually be employed as a means of treating increasingly larger volumes of garbage, sewage sludge, manures, and industrial wastes.

Richard P. Stovroff, president of the Compost Corporation of America, San Francisco, Calif., adds that his company plans to turn garbage into fertilizer, by this method, in a plant able to receive 275 tons per day.

Other Highlights of the Congress

New officers

. . . included Milton Offner, secretary of the Board of Public Works of Los Angeles, who succeeds Allan Rogers, superintendent of public works for Garden City, N. Y., as president; Kenneth K. King, director of public works of Phoenix, Ariz., as western area vice-president; Albert G. Wyler, city engineer of New Orleans, and Frederick W. Crane, director of public works for Buffalo, N. Y., directors-at-large; and Charles Darling, city engineer for Grand Rapids, Mich., treasurer.

Registration for this year's congress, 1,157 public works officials and their wives, was the largest in APWA history. Next year's meeting will be held in Atlantic City, N. J.

AWPA's new President, Milton Offner (left), and Eastern Vice-president E. P. Decher (right), congratulate the new honorary member, Charles Emerson, consulting engineer.

The Charles Walter Nichols Award

. . . for outstanding service in the field of municipal sanitation, was presented this year to Francis J. Magnuson, city engineer of North Mankato, Minn. The prize includes a $500 cash award.

Mr. Magnuson earned the award because of his outstanding service, two years ago, in rehabilitating the city after a violent flood that had forced the evacuation of virtually the entire population. At that time, Mr. Magnuson was city engineer of New Ulm. However, he responded to North Mankato's call for help and not only helped the city back to good operating condition, but built protective works to prevent a similar disaster.

Last year, a second flood of the same intensity struck at North Mankato, but the city remained safe and functioning. The protective measures were so effective that the department received one phone call during the floodcrest complaining about "dusty streets."

Four other nominations for this award included:

W. M. Jarrett, city engineer of Alhambra, Calif., for an unusually thorough and comprehensive study of the city's incinerator operation.

Wendell R. LaDue, chief engineer of water and sewerage at Akron, Ohio, for the development of a safety program in his department that has reduced accidents to the rate of only 2.2 injuries per million man-hours of labor.

Andrew Mulrain, commissioner of sanitation of New York City, for his development of a workable street-sanitation program using mechanical equipment in New York City's crowded streets, contrary to the opinion of most engineers that only hand labor would be practical.

Verne A. Parker, assistant director

of public works of San Diego, Calif., for the development of a formula that puts the selection and operation of sanitary fills in the San Diego area on a mathematically sound basis.

An honorary membership was awarded to Charles A. Emerson of Havens & Emerson, consulting engineers of Cleveland, Ohio, and New York City, for distinguished service to municipal sanitary engineering and long affiliation with the APWA.

Awards for 30 years of service to a municipality were given to 37 men this year. The most notable veteran was Alexander Allison, Jr., designing engineer for New Orleans' Sewerage and Water Board, who has served that city for more than 50 years.

Four street-cleaning goals

. . . should be the aim of a city's sanitation department, assuming that public cooperation is reasonably good.

L. D. Merrill, superintendent of streets and garbage of Birmingham, Ala., lists the highpoints of good operation as: good ordinances, good personnel, good equipment, and good enforcement of ordinances.

The increased cost of labor has centered attention on larger, more efficient labor-saving equipment, such as street sweepers with 2- to 3-yard hoppers that allow longer runs between dumpings, front-end loaders, and various leaf-gathering units.

Good maintenance of equipment is urged by Francis Blake, commissioner of streets in Kansas City, Kans. The policy of his city is to steam-clean and make mechanical checks of all equipment at least once a week. Commissioner Blake pointed out that despite mechanical advances, some manual labor is still needed.

The public must cooperate

. . . in keeping a city's streets clean. With a well-prepared program, Chicago succeeded so well in enlisting wide public support that in one two-month period, the sale of refuse containers by a big department store was boosted from 1,000 to 50,000.

The program was directed by James F. Riley, executive director of Mayor Martin Kennelly's Committee for a Cleaner Chicago. Aimed at enlisting the help of people on the local level, the program divided the city into seven areas and 96 "communities." A respected citizen of each community was appointed as head. The city committee was composed of top civic leaders who worked out objectives in handling refuse.

The committee emphasized its educational program. Digests of city ordinances, simply written, were distributed to business houses. Billboard companies donated space for propaganda; and the schools pitched in by distributing pledge cards to obtain local cooperation. Chain stores gave each customer printed pamphlets urging better clean-up methods. The transportation systems carried posters; laundry and dry-cleaning establishments inserted pamphlets in each laundry pack.

The newspapers published frequent stories about the campaign, and radio stations broadcast spot announcements. A 15-minute film and a sample 5-minute talk was circulated among local leaders.

A camera for leaf pick-up

. . . is a good idea, if it is a newspaper camera. A few photographs of leaves piled illegally in streets located in the better parts of town, when published in the local paper, go a long way toward solving the leaf problem, according to Lyle Kirby, director of public works in Decatur, Ill.

Objectives . . .

of Mayor Kennelly's Committee for a

CLEANER CHICAGO!

1 The proper handling of garbage and other refuse

(a) The city ordinance requires the use of a sturdily built 20 to 32 gal. leak-proof container equipped with a tight fitting cover and two handles.

(b) Refuse containers should be placed at the alley line inside the premises. Where there are no alleys the container should be placed at the curb line the evening preceding the regular day of collection.

2 The elimination of rats

(a) Rat-proofing of buildings. (b) Proper storage of food.
(c) Proper disposal of garbage. (d) Use of poisons and traps.

3 The cleanliness of streets, sidewalks, alleys, parks, beaches and other public property

(a) It is illegal to throw waste paper or other debris on to public ways.

(b) The City Ordinance provides that business establishments are responsible for the cleanliness of public ways abutting their premises.

4 The improvement of private property

A little cleaning, repairing, painting and planting will work wonders.

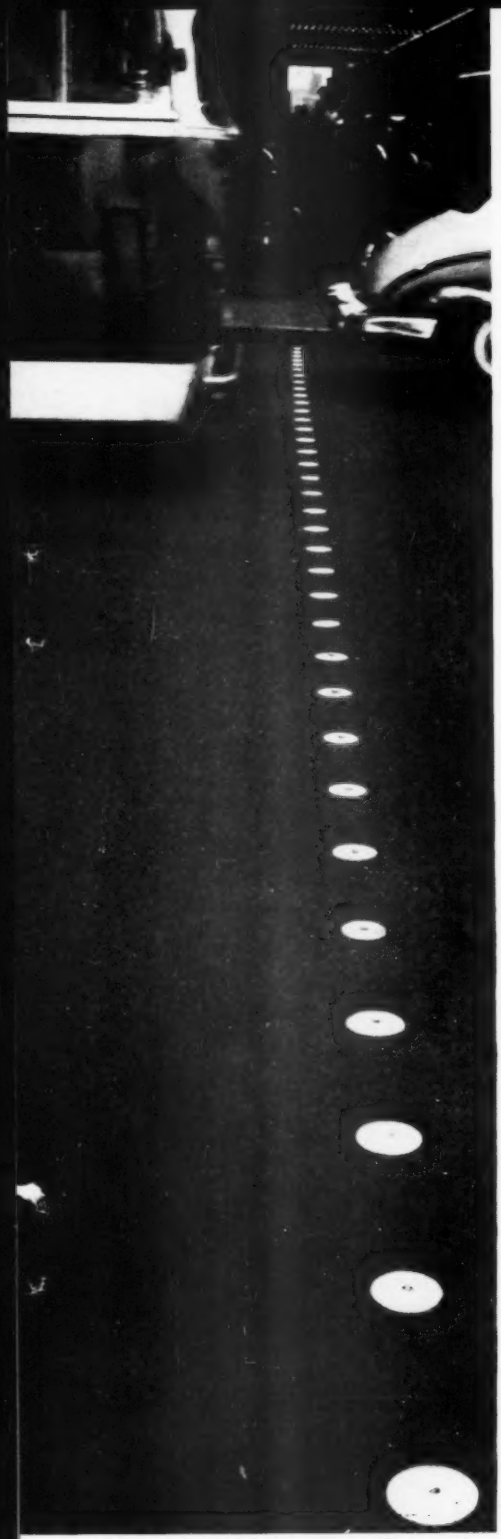
Mayor Kennelly's Committee for a Cleaner Chicago

Gentlemen:

I have read the four objectives of your Committee and hereby pledge my cooperation.

(Signed) Name_____

Address_____



Traffic moves immediately over new Tenite markers
no barricades necessary for drying time.

quickly installed markers keep traffic moving

Traffic markers of durable Tenite butyrate are ready for use when installed—unlike painted lines which present a traffic problem while drying. The Tenite disks are quickly applied to any street surface by means of a special adhesive and a metal pin or screw.

Extremely tough and resilient, the Tenite markers last for years under heavy traffic conditions—eliminate the maintenance problems and costs encountered with painted lines. The brilliant disks remain highly visible under practically all weather conditions. Their molded-in color—chalk white, bright yellow, or red—cannot chip or wear off. They resist dirt and tarnishing.

In addition to use for municipal traffic lanes and crosswalks, Tenite markers are ideal for garages, parking areas, and many types of industrial plant installations. For further information, or help in locating a source of supply, write or send coupon to EASTMAN CHEMICAL PRODUCTS, INC., KINGSPORT, TENNESSEE, *sales representative for* Tennessee Eastman Company, *division of Eastman Kodak Company.*

EASTMAN CHEMICAL PRODUCTS, INC., KINGSPORT, TENNESSEE

I am interested in traffic markers made of Tenite butyrate. Please have manufacturers send literature and price information. ★

Name_____

Title_____

Company or Municipality_____

Street_____

City_____ State_____

AC-12-53

TENITE
BUTYRATE
an Eastman plastic

BOX ALARMS ARE POSITIVE ALARMS

Large city or small town — you need the advantages that a fumble-proof Municipal Fire Alarm System can give you.

The small community can get these advantages at an average annual cost of less than a dollar a person per box, including maintenance:

FAST, always accurate, alarm to the Municipal Fire Department keeps fire and water damage low.

LOWER insurance rates frequently result when a complete Fire Alarm System is installed by a community.

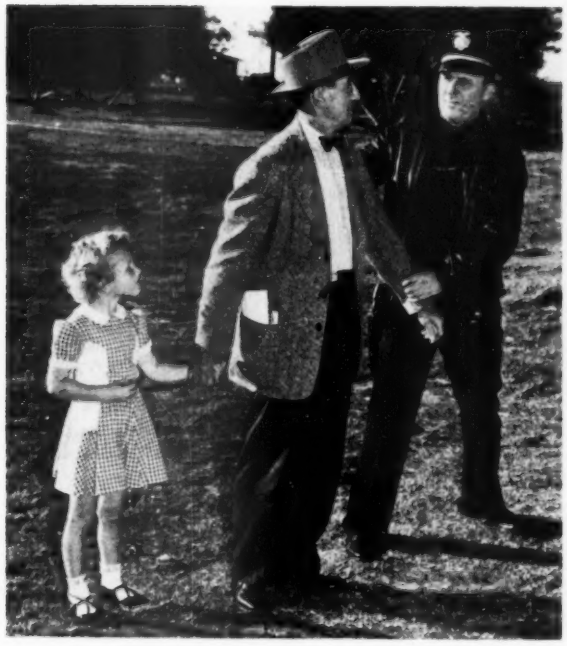
For the full story of safe, sure alarms with a Municipal Fire Alarm System, consult us on making a survey. The System can be started now, extended in years to come.

There is no substitute for the Municipal Fire Alarm System

THE GAMEWELL COMPANY
NEWTON UPPER FALLS 64, MASS.
In Canada: Northern Electric Co., Ltd., Belleville, Ont.

Public Safety

New Police Movie For Building Good Will



Chief Lowell Hopkins, of Redondo Beach, Calif., checks through the camera viewfinder as a scene is being prepared.

A child molester being apprehended in a park. This sequence advises children and parents to trust local police officers as friends—and to report any lawbreakers to police.

HOW CAN the general public be induced to appreciate the numerous functions of its police department? Charts and reports are not likely to be read. Talks at schools and over the radio reach comparatively few. The courteous presentation of a traffic ticket impresses fewer.

My feeling was that the motion picture was the most effective and, because it can be shown again and again, the most lasting method of winning public regard. Riviera Productions, producers of motion pictures and TV films, agreed to work with us to provide a film if we made it available to all municipalities.

After three months of shooting, editing, and recording, the film was ready for release. In our preview before a professional group of police, the comments were: ". . . wonderful, something we have needed for a long time;" ". . . you've just begun to scratch the surface," and ". . . let's get this film out and show it."

We were frankly doubtful of what the citizens' reaction would be, but after one showing we wondered what we had ever worried about. In fact, this film seemed to fill a need. ". . . Do you people do all those things?", and "... I want my kids to see that; they'll have more respect for policemen," were typical comments.

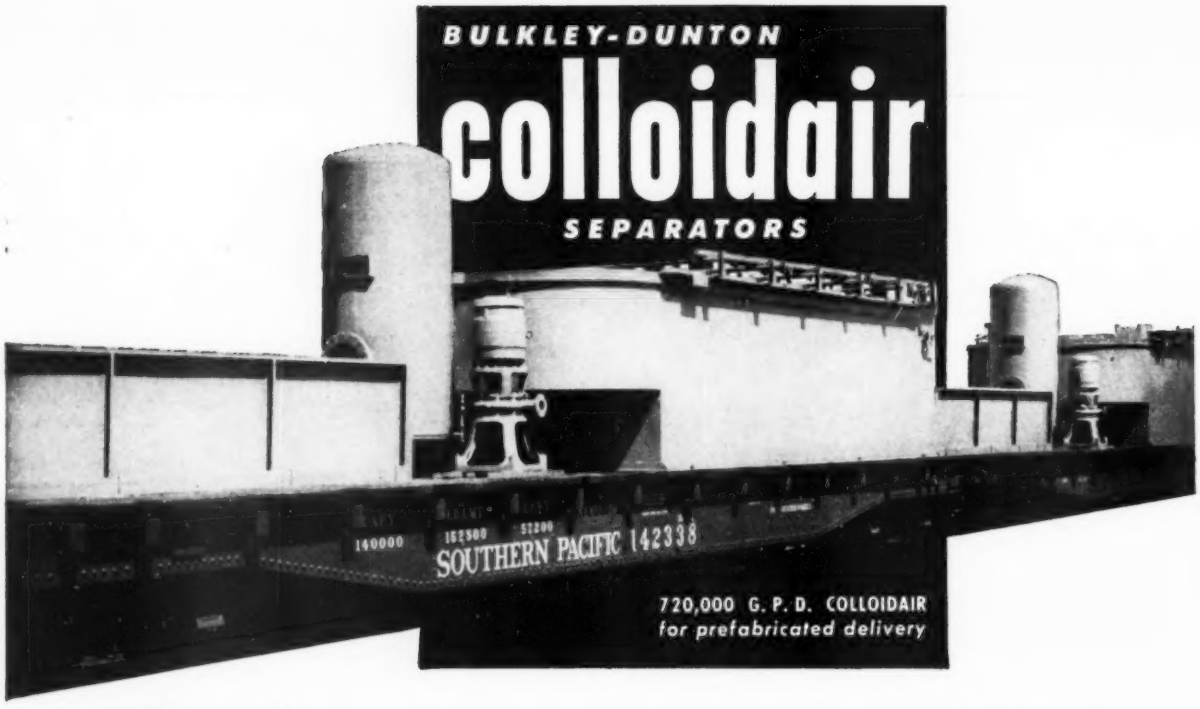
On the market for a few months now, the film has been shown in all of the states. It runs for 15 minutes and it covers 15 police situations. The film is available in 35mm size for showing in commercial theaters, and in 16mm size for schools, churches, service clubs, civic groups, women's organizations, and other public gatherings.

By A. Lowell Hopkins, *Chief Police Department Redondo Beach, Calif.*

EDITORIAL NOTE: Interested city officials may address inquiries to the author or to Riviera Productions, Redondo Beach, Calif., for complete details.

State-Wide Fire Radio

THE Delaware state-wide radio communications system for use by volunteer fire departments was launched on May 10, 1953. Each of the 53 volunteer companies is equipped with a General Electric mobile two-way FM radio unit. Three headquarters base radio stations, one in each of Delaware's counties, form the backbone of the network. Special tones also can be transmitted for automatic control of air-raid warning devices.



Packaged

1. SMALL MUNICIPALITY SEWAGE TREATMENT
2. INDUSTRIAL WASTE TREATMENT

HIGH EFFICIENCIES • LOW SPACE REQUIREMENTS • PROVEN PERFORMANCE

→ PRIMARY FLOTATION CLARIFIERS

Prefabricated flotation cells utilizing the dissolved gas method for high efficiency on a wide variety of suspended solids, oils, and greases. Available in sizes from 25 G.P.M. to 2000 G.P.M. in steel, and to 6000 G.P.M. in tile or concrete.

→ PACKAGED TRICKLING FILTERS

The Colloidair Trickling Filter is of package design for economical installation where smaller sizes are indicated. Standard and high rate models.

→ ROTARY VACUUM and PLATE and FRAME FILTERS

Complete line of rotary vacuum filters utilizing precoat sweetener or flocculents. Complete line of plate and frame or tubular element filters, manual or automatic backwash.

Bulkley-Dunton engineered sewage and waste water treatment equipment meets city and state disposal requirements. Write for details!

BULKLEY-DUNTON PROCESSES, INC.

Dept. O-1, 295 Madison Avenue, New York 17, N. Y.

Pacific Coast: Dept. O-1, Security Building, Pasadena, Calif.

Sewerage & Sewage Treatment

Sewer Mining

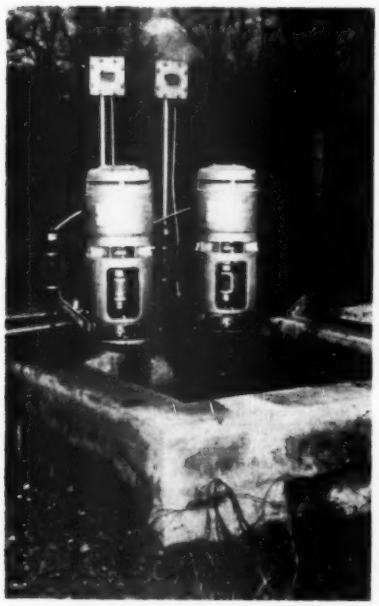
EUCLID, OHIO, broke a precedent by employing coal-mining equipment to drive a storm sewer through shale, several months ago, when city officials were swamped with protests by residents whose homes adjoined the proposed improvement. The irate citizens complained that the dynamite blasting and digging operations were shaking their homes, cracking foundations and footings, and disturbing their sleep.

Michael Spino, administrative director for the city, and Charles E. Reyner, engineer for National Construction Company, who was boring the tunnel, explored various alternates. Together, they arrived at a simple solution by taking a leaf from the experience book of the bituminous coal industry. They decided to tunnel for the sewer by using one of the new coal-mining machines.

The unit they selected was built by the Joy Manufacturing Company of Franklin, Pa., and is powered by motors specially built by the Reliance Electric and Engineering Company of Cleveland, Ohio. The mechanism is about 25 feet long, 7 feet wide, and combines in one operation all the steps of cutting, dredging, blasting, and loading. It has successfully dug a hole 12 feet around, digging at the rate of 20 feet and more each eight-hour day.

This is the first use that has been made of the mechanical coal miner for storm-sewer construction.

A mechanical coal-mining machine digs a sewer noiselessly in Euclid, Ohio, after an irate public had vetoed the standard use of dynamite.



The automatic, nonclogging pumping station at Blountsville is weatherproofed.

Automatic Pumping

A SMALL COMMUNITY of 695 people, like Blountsville, Ala., that builds a sewer system and treatment plant, doesn't intend to spend a lot of money on full-time operators. Instead, this little village recently put into operation an economic sewerage system consisting of two trunk lines of 8- and 10-inch diameters, an automatic pumping station, and a septic tank.

In this system, automatic pumping is the heart of the entire works. To insure against "heart trouble," the village installed two motor-driven, bladeless impeller sewage pumps, designed for nonclog operation. Each is a 4-inch, vertically mounted Fairbanks-Morse pump, driven by a 2-hp, vertical, electric motor. The motors are weatherproofed to eliminate the need for pumphouse or other shelter. They are started and stopped by Healy-Ruff motor controls, actuated by floats in the suction pit. The floats are arranged so that one pump starts at a time. The second starts only when the flow is too great for one unit. Float settlings can be altered quickly by a simple adjustment.

The nonclog impellers have proved their worth by dependable operation. Public Works Superintendent Floyd Bailey reports that the two pumps have not clogged in more than a full year of operation. The bladeless impellers offer another advantage. For a specific solid size, this type of pump delivers half the capacity of conventional pumps, making it possible to pump small volumes efficiently by using a fairly small driving motor.

Natural Rubber

may be Your Way To S-T-R-E-T-C-H Highway Dollars

Results from more than a score of test roads of natural rubber laid in the U. S. as far back as 1949 give definite promise of a new era in highway building. Both laboratory and in-place studies indicate that natural rubber roads will last longer, require less maintenance, and aid greatly in stretching our burdened highway budgets.

The Natural Rubber Bureau's Research Laboratory is staffed with experienced highway engineers who are ready to assist you in planning and installing test strips of natural rubber roads.

Do you have a question on rubber roads? For the answer, just mail the inquiry sheet, or write direct.

MAIL THIS INQUIRY SHEET *today*

NATURAL RUBBER BUREAU
1631 K Street, N. W., Washington 6, D. C.

With no obligation, please send me engineering data for laying a test strip of natural rubber-asphalt pavement as follows:

1. Length of proposed test strip ..... miles
   Width of proposed test strip .....feet
2. New Construction ☐ Resurfacing ☐

PLANT MIX	SURFACE TREATMENT
Type: Hot ☐ Cold ☐	Grade of Bitumen.....
Grade of Asphalt.....	Application Rate....gals. per sq. yd.
Penetration.....	
Depth of Top Course ....., inches	COVER MATERIAL
Aggregate Content.....%	Type of Aggregate.....
Aggregate Top Size.....%	Size of Aggregate.....
Bitumen Content.....%	Lbs. per sq. yd.....

Name.....
Title.....
Dept.....
Address.....
City..... State.....

☐ Please send booklet "STRETCHING HIGHWAY DOLLARS WITH RUBBER ROADS"

☐ Please send information about new 30-minute motion picture on rubber roads

Natural Rubber Bureau

1631 K STREET, N. W. WASHINGTON 6, D. C.

Natural Rubber Bureau Research Laboratory
Rosslyn, Virginia

Get What You Want—No Charge!

Please check the list of interesting free catalogs on this and following pages. To obtain the literature you want, write directly to the manufacturers at the addresses given. If you prefer, you may circle the identifying number on this coupon and mail to THE AMERICAN CITY, 470 *Fourth Ave., New York* 16, *N. Y., and we will see that catalogs are sent to you without expense or obligation.* 12/53

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Name .....**Position** .....

Address .....

Simplifies Refuse Collection

841 This refuse collection unit has a continuous mechanical loading mechanism that works automatically, handling ashes, rubbbish, and garbage. Boxes, crates, cartons, etc., are broken up in the hopper, then conveyed to the body. Other advantages include low operating pressure, greater compaction, and extremely low loading height. Get full details on the Roto-Pac from CITY TANK CORP., 53-09 97th PL., CORONA, L. I.

Street, Traffic, and Flood-Light Standards

842 The aluminum alloy standards and street-lighting brackets made by this company won't tarnish. Only one-third the weight of steel standards, they are simple to handle and to erect. Their high visibility is a major factor in accident reduction. Get detailed literature from HUBBARD ALUMINUM PRODUCTS CO., 6301 BUTLER ST., PITTSBURGH 1, PA.

Sturdy Park and Playground Equipment

843 Durable, safe equipment for public parks, playgrounds, and swimming pools is manufactured by the AMERICAN PLAYGROUND DEVICE CO., ANDERSON, IND. Units offered include: park benches, steel bicycle racks, combination swings, slide, and see-saw outfit, and sturdy diving boards. Write for literature.

Easy Way to Bore Street Crossings

844 A quick, inexpensive way to bore street crossings without halting traffic, is to use a Crose Auger-Type Road Boring Machine. Valuable anywhere that rock is not encountered, the unit eliminates cave-ins. Casing is installed as the boring progresses. Write M. J. CROSE MFG. CO., INC., 2715 DAWSON ROAD, TULSA, OKLA.

Equipment Lettered Economically

845 Municipal rolling equipment may be quickly lettered, advises WARD TRUCKSIGN TRANSFERS, 8504 LYNDON AVE., DETROIT 38, MICH., with improved Trucksign Transfers. Simple to apply, Ward's Transfers won't tie up equipment. They are brightly colored, long-lasting, and economical. Write for literature.

Fast New Way to Cut Brush

846 Park officials should appreciate this labor-saving brushcutting machine that permits one man to do the work of six. Each Brushmaster is equipped with a circular saw blade that cuts through matted grass, vines and briars. The machine will operate overhead, close to the ground, right to left and back again. Write BRUSHMASTER SAW, INC., 853 EMERALD ST., KEENE, N. H. for *The Story of the Six to One Cut.*

Salvage Covers for Fire Department Use

847 Municipal fire department officials are offered Shuredry Green-Bak salvage covers to cut water and smoke damage. These covers are pressure impregnated by a special Fulton dry-treatment process. All seams are completely waterproof. Address the FULTON BAG & COTTON MILLS, P. O. BOX 1726, ATLANTA 1, GA.

Why Plastic Pipe?

848 Perhaps the main reason advanced by water and sewage officials for their choice of plastic pipe is flexibility. By far the most flexible of pipe materials, plastic is durable, too. It is lightweight and inexpensive to install. For literature, write CARLON PRODUCTS CORP., 10300 MEECH AVE., CLEVELAND 5, OHIO.

The Towel Problem

849 Towel service is a major expense in public washroom operation. The towels must be adequately stored, and quickly disposed of. Plumbing service is endangered, and washrooms are apt to take on an unsightly appearance. The Cleveland Municipal Stadium avoided the entire towel problem by installing National Hand Dryers. Information on these units is available from NATIONAL DRYER SALES CORP., AC 3-12, 616 WEST ADAMS ST., CHICAGO 6, ILL.

Helps Collect Full Water Revenue

850 If a community expects to get full revenue, it should have meters that unfailingly record each drop of water used. A Badger meter, says the manufacturer, does this at less cost. THE BADGER METER MFG. CO., MILWAUKEE 45, WIS., will send complete information on request.

A Compound Water Meter

851 To help water-works officials measure a larger range of flows accurately, this company has introduced a special meter in which a Current Meter and a Positive Displacement Meter are combined with a standard Hersey Lever Valve. Designated Model CT, the all-bronze unit is made in 2- to 6-in. sizes. For full data, address HERSEY MFG. CO., S. BOSTON, MASS.

Valves & Hydrants Get Ring-Tite Joints

852 Smith gate valves and fire hydrants are now available with the new Ring-Tite Coupling Joint developed by Johns-Manville for their Transite Pressure pipe. Gate valves with these connection joints are made in 4- through 12-in. sizes. Smith fire hydrants are for use with 4- and 6-in. Class 150 Transite Ring-Tite Joint pipe. Address THE A. P. SMITH MFG. CO., E. ORANGE, N. J.

Double-Header Light Guides Traffic

853 Here is a battery-operated warning light that flashes in both directions at the same time. Placed atop a wrecked car, it controls traffic from both directions. Mounted on the front of a "Stop," or "Caution" sign, one lens will illuminate the face of the sign, while the other lens faces oncoming traffic. A full description of Neo-Flasher Model 2-100, will be sent by LIGHT PRODUCTS, INC., BEVERLY HILLS, CALIF.

No Broken Axles With This Loader

854 "Broken axles," says The Baker-Lull Corp., "are the largest source of trouble on ordinary loaders." To reduce axle and drive strain, the company has equipped the 4-wheel drive, 1½-yd capacity Shoveloader with planetary gear axles that have a 3 to 1 gear reduction in each wheel. Write THE BAKER-LULL CORP., 358 W. 90th ST., MINNEAPOLIS 20, MINN.

Planned Meter Repair and Testing

855 NEPTUNE METER CO., 50 W. 50th St., NEW YORK 20, N. Y., tells what's needed to set up a planned water meter repair program, and shows you how to lay out a meter shop. The company also offers step-by-step instructions for the repair of Trident Meters. Write for *Form 413-1* on Frost Proof Meters, or *Form 412* on Split Case Meters.

(Please turn to page 27 for more Bulletins)

BAKER BUILDS THE COMPLETE LINE

For light, average, or heavy-duty snow removal with all sizes, all types of trucks.

REVERSIBLE-TRIP PLOWS

Models	Size Trucks
358 - 358A	1½ to 2½ tons
359 - 359A	2½ to 3 tons
353 - 353A	Medium
354 - 354A	Heavy-Duty

ONE-WAY SECTIONAL TRIP PLOWS

271 - 271A	1½ to 2½ tons
272 - 272A	2½ to 3 tons
273 - 273A	3½ to 5 tons
275 - 275A	5 tons and up

"V" PLOWS

261	1½ to 2½ tons
262	2½ to 3½ tons
263	3½ to 5 tons
265	5 tons and up

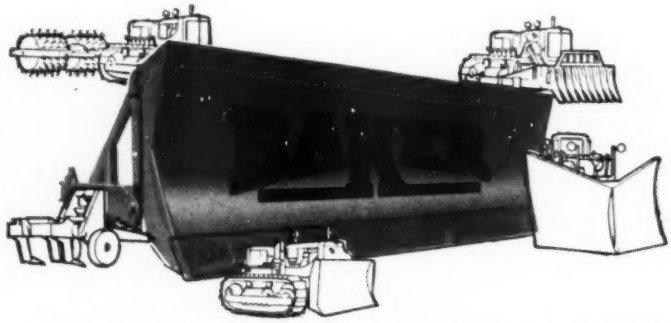
Frames provided in both Underframe and Front Push models; Hand Hydraulic and Power Lift.

How to Soften Up a Hard Winter FAST!

Be *ready* this winter . . . don't be caught short of equipment *designed to soften up a hard winter—fast!* Baker Snow Plows offer such features as "Roll-Action" blades that *lift* the snow with less engine effort . . . original Sectional Tripping action, permitting faster operation with the blade right down on the pavement. And Baker Snow Plows are *rugged;* reinforcing and bracing were developed from tests under the most adverse conditions.

To get *complete* information, write direct to The Baker Manufacturing Company, Springfield, Illinois, for the name of the Baker Snow Plow dealer near you—and ask for Bulletin No. 1003.

Baker Sectional Tripping feature. Blade swings back over obstruction; snaps back *fast* into normal position.



THE BAKER MANUFACTURING COMPANY • SPRINGFIELD, ILLINOIS

Which Catalogs Interest You?

Write directly to the manufacturers or use the coupon on page 25

Need Concrete Pipe?

856 Get it in a jiffy from America's largest producer of concrete sewer and drainage pipe. No special problem is too difficult. Tunneling becomes easy with the oval-shaped "Tunneliner" pipe. Underpass construction is simple with the flat-base pipe. Prestressed concrete bridge sections as well as "packaged" bridges can be supplied to your specification. For all the details address DEPT. CP, AMERICAN-MARIETTA CO., AMERICAN-MARIETTA BLDG., 101 E. ONTARIO ST., CHICAGO 11, ILL.

Quick Sewer Cleaning

857 Remember when clearing clogged sewers was a job that lasted weeks on end? Today your municipality can complete the same work in days using the new Power Rodding method. Equipment from this company quickly restores pipe to full capacity; saves you the cost of replacing them. Complete details are obtainable from the NATIONAL POWER RODDING CORP., 4600 W. MADISON ST., CHICAGO 44, ILL.

High Output Diesel Engines

858 Ranging in size from 2,550-hp, 1,800-kw to 6,150-hp, 4,400-kw, the Nordberg 2-cycle type TS-21 engines described in this bulletin are widely used in municipal power plants. These engines feature improved scavenging, increased speed, and better combustion; all of which result in more power at less cost. Get *Bulletin 224A* from NORDBERG MFG. CO., MILWAUKEE 1, WIS.

Spend Less to Lay Underground Cable

859 A fast, inexpensive way for cities to lay underground electric cable, is to use one of F. B. Ryan's wire and cable layers. These machines are manufactured in regular and "king" sizes. They are said to require less drawbar hp, and less between job transportation cost. F. B. RYAN, CHARITON, IOWA, will furnish additional information.

Water-Works Valves

860 Two bulletins from the RENSSELAER VALVE CO., TROY, N. Y., describe easy-to-operate check valves that eliminate slamming, and double disc gate valves with interchangeable parts. The former are discussed in *Bulletin V-49*; the latter, in *Bulletin X-47*.

Oil Conditioning for Power Generators

861 This maufacturer offers a dependable turbine oil conditioning system for all power generating units. A Bowser conditioner keeps oil clear and dry. It reduces bearing failures, and requires less stand-by equipment. Get full details from BOWSER, INC., 1342 CREIGHTON AVE., FORT WAYNE 2, IND.

Street Lighting Reflector

862 A low-cost open reflector that transforms a dark, dangerous street into a well-lighted thoroughfare, is offered by WHEELER STREET LIGHTING, 275 CONGRESS ST., BOSTON, MASS. Each unit has a floating screw neck for accurate light direction, also, special Edgeflector that reduces the glare from exposed filament. For details on the Crescent Reflector, write the company.

Aerial Photography Aids City Planners

863 City planners and engineers will get all the information they need for the detailed location of water and sewer lines, new streets and street improvements, new subdivisions, etc., from topographic maps compiled from aerial surveys. This firm will conduct mapping programs for large and small communities at low cost. Included are mosaics and planimetric maps for annexation, zoning and traffic flow studies. Address JACK AMMANN PHOTOGRAMMETRIC ENGINEERS, BROADWAY AT TENTH, SAN ANTONIO 5, TEX.

For Easy Snow Plow Operation

864 These hydraulic controls will handle most any snow plow designed for hand pump lift. You move the control lever and raise or lower the plow automatically. This simple operation will save time and man power, reduce wear on blades and shoes. For detailed literature, write MONARCH ROAD MACHINERY CO., 327-329 FRONT AVE., N. W., GRAND RAPIDS, MICH.

Save With Concrete Street Lighting Standards

865 The water-polished granite finish of these prestressed concrete street-lighting standards assures almost maintenance-free service for years. Prestressing gives each Hy-Lite Spun-Crete standard greater strength and flexibility under overloads. Rigidity under designed loads is also increased. Write AMERICAN CONCRETE CORP., 5092 N. KIMBERLY AVE., CHICAGO 30, ILL.

Stock up on Sign Posts

866 While spring is generally considered the "clean up, fix up" season, winter is the time for communities to stock up on sign posts. The BUFFALO STEEL DIV. of H. K. PORTER CO., INC., makes a steel post that is easy for one man to set in any soil. Each post is punched with holes for quick bolting of signs and markers. A full description of Quick-Set Sign Posts is available from the company located at TONAWANDA, N. Y.

Portable Chain Saw

867 Magnesium and aluminum combine to make this portable chain saw light enough for one man to handle. Power driven, it cuts twice as long on a tank of fuel; will handle 15 additional trees per quart. The Luther saw is recommended for limbing for clearance, cleaning up blowdowns, and felling deadwood hazards. Write LUTHER ENGINE DIV., LUTHER CORP., WILLIAMS BAY, WIS.

This Bituminous Plant Guarantees Better Streets

868 What "pays-off" in a bituminous plant? According to BARBER-GREENE, AURORA, ILL., the answer is "tonnage produced." A B-G 848 plant provides 80 to 140 tons of any bituminous mix each hour. Portable, these plants have automatic, interlocked operation that assures greater accuracy. Details on request.

Color Film Portrays New Motor Sweeper

869 In literature and on film, the AUSTIN-WESTERN CO., AURORA, ILL., features the Model 40 Motor Sweeper, a short conveyor with full vision operation. This unit incorporates an adjustable drag board, sectional spray system, and new leaf broom. It simplifies sweeping, loading and dumping. For *Bulletin AD-2170*, or the sound-color movie, *All Around the Town*, address the manufacturer.

An Accurate Pipe Detector

870 A competitive test was the basis that a California gas utility used when it purchased 135 Detectron 505 pipe detectors. The test covered sensitivity, accuracy, durability and simple operation. The detectors have enjoyed equally growing popularity in the water-works field. Write THE DETECTRON CORP., 5420 VINELAND AVE., N. HOLLYWOOD, CALIF., DEPT. 54-C, and ask about a demonstration.

Repairs Pipe Quickly

871 You don't have to stop service to repair a break in water pipe, says R. H. BAKER & CO., INC., 2070 E. SLAUSON AVE., HUNTINGTON PARK, CALIF. The CircleSeal Clamp will make a permanent repair minutes after the break is uncovered. Simply wrap the clamp around the line and draw up on the bolts. These clamps will repair full breaks in asbestos-cement, cast iron and steel pipelines.

Cuts Pipe Line Corrosion

872 Many communities have found that magnesium anodes offer an inexpensive cathodic protection for pipelines. Simple to install, they provide a large electrical storage capacity, high driving voltage, and an efficient utilization of developed current. Furthermore, magnesium anodes are flexible and offer complete freedom from polarization. Write PIPELINE ANODE CORP., 25th W. AVENUE and SAND SPRINGS RD., TULSA, OKLA.

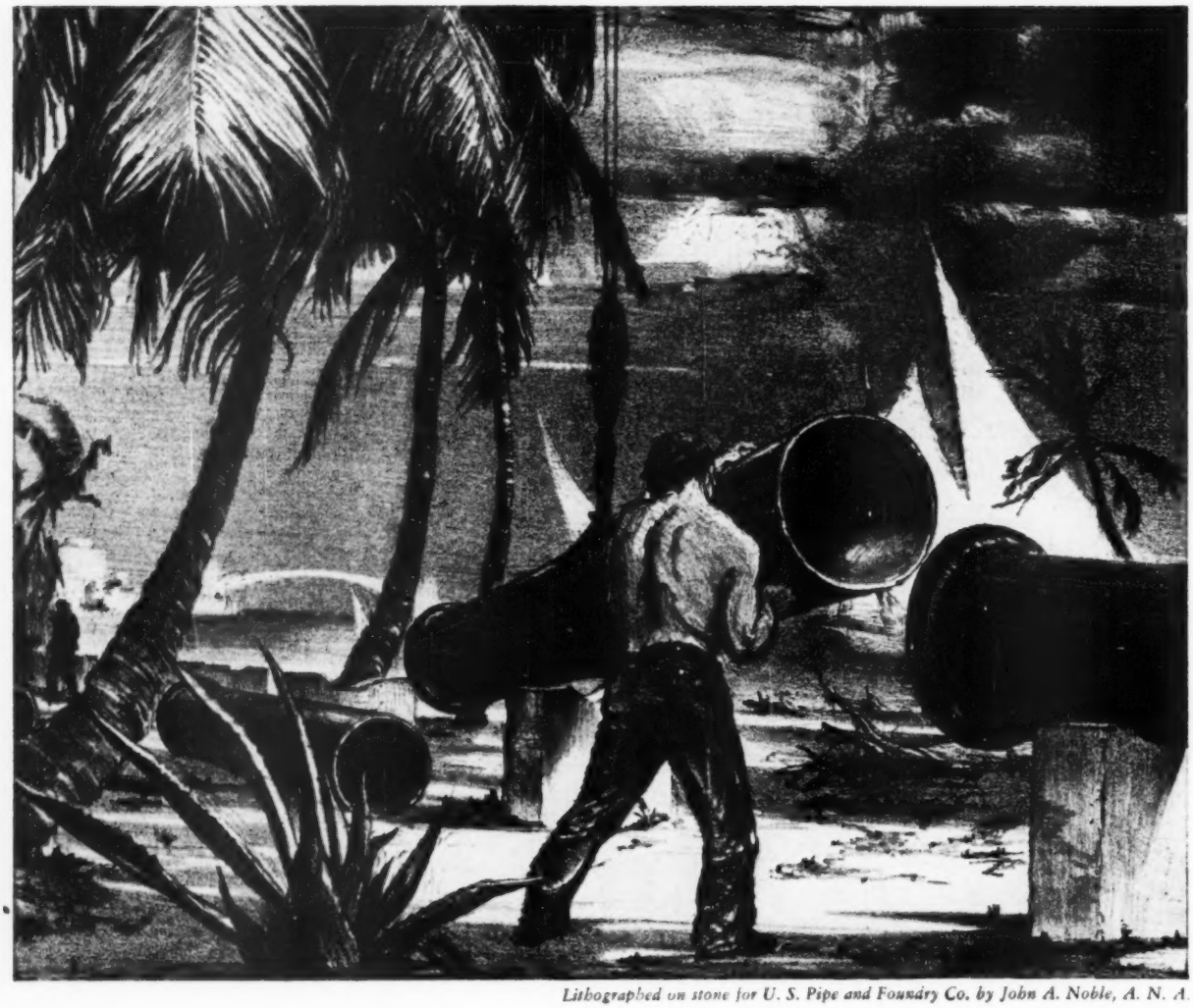
Weather No Problem In Street Maintenance

873 A premix for patching, paving, and other street repair work that can be applied in any kind of weather, and stockpiled in usable form is offered by KOPPERS CO., INC., PITTSBURGH 19, PA. Using standard street repair equipment, you can apply Komac throughout the winter without heating. It wears well under heavy loads; won't push or bleed in hot weather. Request form No. T 15-301.

Aerial Surveys Help Cut Costs

874 Literature describing how public-works engineers have saved time and money with aerial surveys, is available on request from ABRAMS AERIAL SURVEY CORP., LANSING 1, MICH. Abrams will also show you how their remarkably accurate maps can bring about a quick, effective solution to many city-planning problems.

(Pease turn to page 29 for more Bulletins)



Lithographed on stone for U. S. Pipe and Foundry Co. by John A. Noble, A. N. A.

WHEN THE GROUND is unstable or a definite grade has to be maintained cast iron pipe is frequently laid on piers or pile bents. Whether above ground or underground there are installations of cast iron pipe with continuous service records measured in generations.

We are well equipped to furnish your requirements for cast iron pipe and fittings made in accordance with American Standard, Federal and American Water Works Association specifications. U. S. pipe centrifugally cast in metal molds is available in sizes 2- to 24-inch and pit cast pipe in the larger sizes with bell-and-spigot, mechanical, flanged or other types of joints.

United States Pipe and Foundry Co.,
General Office, 3300 First Ave., N. • Birmingham 2, Ala.
Plants and Sales Offices Throughout the U. S. A.

U.S.
cast iron
PIPE
FOR WATER, GAS, SEWERAGE AND INDUSTRIAL SERVICE

Obtain this Literature Free of Charge!

Write directly to the manufacturers or use the coupon on page 25

California Plant Uses New Water Softener

875 Chempro C-20 polystyrene cation exchange resin is used to soften Colorado River water at Southern California's new water softening and filtration plant. This resin, along with Duolite A-7 (anion exchanger for demineralization), and Duolite A-41 (for silica removal), is made by CHEMICAL PROCESS CO., REDWOOD CITY, CALIF.

Makes Hot Patches for Street Repairs

876 Municipalities are offered a small, mobile asphalt plant for efficient street maintenance. The Patchmobile mixes, heats and makes hot patches right on the job. Mechanical charging of aggregate and asphalt directly into the pugmill, eliminates manual handling. Write WYLIE MFG CO., P. O. BOX 7086, OKLAHOMA CITY 12, OKLA.

Cement-Mortar Linings Give New Pep to Old Pipe

877 Pressure-loss in water pipelines is often due to tuberculation and corrosion. To avoid this loss, apply cement mortar to the walls of pipelines in place, after cleaning. The Centriline process is fully described in literature from CENTRILINE CORP., 140 CEDAR ST., NEW YORK 6, N. Y.

Offers Adequate Air Raid Protection

878 A safe, adaptable air raid siren, with a strong signal, is offered by DEPT. 29, SIREN LAYOUT SERVICE INDUSTRIAL ENGINE DIV., CHRYSLER CORP., TRENTON, MICH. This rotating siren may be operated from either fixed or moving location. Warning sound carries up to four miles in every direction, covering the same area as 120 ordinary sirens. Literature sent on request.

Saves Parking Space in Public Lots

879 One way to save space, as much as 30%, in a public parking lot, is to provide safe, straight parking lines that are easily followed. These lines are made quickly and inexpensively with an easy-to-handle Florline Marking Machine. The H. C. SWEET CO., 24396 W. 7 MILE RD., DETROIT 19, MICH., will send full information on request.

Standard and Custom Designed Police Badges

880 In addition to a full collection of standard police badges, V. H. BLACKINTON & CO., INC., ATTLEBORO FALLS, MASS., offers special badge designs originated in the company's custom department. These badges, report Blackinton officials, will mean added prestige for police officers in your community. Write for literature.

Protects Wood Block Floors

881 The MAINTENANCE ENGINEERING CO., 16 W. JOHNSON ST., PHILADELPHIA 44, PA., tells you how to protect wood block floors from fire. Fill and seal them, the company advises, with MECO 73, a low-cost, easily applied chemical that prevents the wood block from absorbing grease and oil. MECO 73 is waterproof and acidproof, as well. Write for literature.

Loads Snow Quickly At Less Cost

882 Attach this snow loader to the front end of a truck, and it will clean up to 7 cubic yards of snow per minute. Kato-Nokes loads an average truck in some 50 seconds. Powered by the truck engine, it is hydraulically operated by controls in the driver's cab. For full information, write VALLEY MACHINE CO., 1415 FIRST AVE., MANKATO, MINN.

Metal Equipment Needs Protection

883 Protect iron and other porous metals from costly rust and corrosion with this new plastic base finish. According to the TENNESSEE FABRICATING CO., the finish will neither peel, crack, nor blister. Apply it by dipping, or with a spray gun or paint brush. For additional data, address the manufacturer at 1490 GRIMES ST., MEMPHIS, TENN.

New Winch and Digger-Drive Kit

884 Tel-E-Lect Products, Inc., manufactures a Winch and Digger-Drive Kit designed for mounting on the Dodge Power Wagon. Prices, instructions for installation, and other pertinent data on the G-53 Kit are obtainable on request from TEL-E-LECT PRODUCTS, INC., 10001 MINNETONKA BLVD., MINNEAPOLIS 16, MINN.

Aluminum Signs and Markers

885 Street-name, institutional and other municipal signs, with plain coated or reflectorized letters, are made of corrosion-resistant aluminum by LAKE SHORE MARKERS, 654 W. 19th ST., ERIE, PA. Also available from this manufacturer are aluminum weather vanes, honor rolls, and historical and directional markers.

These Centrifugal Pumps are Self-Priming

886 *Bulletin 52* discusses portable, self-priming centrifugal pumps, with built-in suction check valves. Each unit has a cartridge type shaft seal that bars air intake into the pump and around the pump shaft; also trash-type impellers that produce a quick prime. Write RICE PUMP & MACHINE CO., BELGIUM, WIS.

Easier Way to Thread Pipe

887 Cut clean, leak-proof threads on ¼- to 4-in. pipe quickly with the Port-A-Pony power pipe threader. This lightweight hand tool can be used in working areas of 12 inches. Cuts pipe in ditches, overhead, in the well pit, and between joists. THREAD-EZY MFG. CO., 336 N. SHIAWASSEE ST., CORUNNA 2, MICH., will send literature on request.

Fast-Cutting Chain Saw

888 A low-cost, fast-cutting chain saw, with fully automatic clutch and rewind starter, all-gear transmission, and a completely enclosed flywheel, is introduced by McCULLOCH MOTORS CORP., 6101 W. CENTURY BLVD., LOS ANGELES 45, CALIF. Called Model 33, the saw has a narrow-kerf Sabertooth chain, plus 12- or 16-in. blades. It's powered by a lightweight McCulloch gasoline engine. Write for literature.

Pipe Couplings

889 For permanently repairing broken or cracked pipe, Smith-Blair clamp couplings lower initial cost and require less excavating for installation. Company reports higher percentages of complete shut-offs on the first try—under pressure. Widths, 5 to 30 inches, and sizes, 2 to 12 inches. Obtain catalogue describing all Smith-Blair products from SMITH-BLAIR, INC., 539 RAILROAD AVE., SOUTH SAN FRANCISCO, CALIF.

Aluminum Waste Receptacle

890 Painting ordinary waste receptacles is costly. Not painting them, on the other hand, results in unattractive, rusty units that don't invite use. A good solution for every community is to use a rust-proof aluminum receptacle that retains its lustre year after year. These units are easy to repair and simple to empty. Write MILLS ENGINEERING CO., 672 S. LAFAYETTE PARK PL., LOS ANGELES 5, CALIF.

Use Sanitary Fill in Small Communities

891 At one time only large cities able to afford high-cost equipment could dispose of refuse by the sanitary land-fill method. With the Oliver OC-3 Tractor-Loader, small communities, too, can use the method economically. The unit handles the complete sanitary-fill operation. It may also be used to load crushed stone, sand, and gravel; strip top soil; and clear snow-filled streets. Write for details to THE OLIVER CORP., 400 WEST MADISON ST., CHICAGO 6, ILL.

Inexpensive Radio Receivers for Trucks

892 Two new radio receivers are announced by Radio Apparatus Corp., makers of a comprehensive line of low cost receivers for ambulances, buses, civil defense, fire trucks and for Walkie-Talkie. The new receivers are for the frequency ranges 30-50 mc or 147-174 mc. For further information write RADIO APPARATUS CORP., 55 N. NEW JERSEY ST., INDIANAPOLIS, IND.

Strong Pipe Stressed for Water & Sewage Lines

893 When choosing pipe for water and sewage service, strength should be your primary concern, advises the BETHLEHEM STEEL CO., BETHLEHEM, PA. Other factors to consider are the pipe's resilience and resistance to shock and corrosion. Tar-Enameled Steel Pipe combines these qualities and has the added advantage of leakproof joints.

Treated Wood Lasts Longer

894 Fence posts, wood fencing, loading platforms, ramps, and other wooden structures in your community, should be protected against the attack of decay and termites. A good way to provide this protection is to pressure-treat the wood with Pentachlorophenol. This chemical, commonly known as Penta, is highly toxic to both termites and wood-destroying fungi. Write THE DOW CHEMICAL CO., MIDLAND, MICH.

(Please turn to page 30 for more Bulletins)

Easily reaches top of 90-foot trees. Perfect for parks, golf courses, playgrounds, swimming pools, tourist courts, picnic grounds, etc.

PROTECT trees, shrubs and grass with

IRON AGE MIST SPRAYER

Users everywhere are praising the performance of Oliver Iron Age Mist Sprayers wherever insects and disease are a problem. For here's the greatest sprayer ever developed for effective, low cost pest control.

Just look at the outstanding features of this Oliver Iron Age Model 125. Rugged 22 hp, 4-cylinder Wisconsin engine drives sturdy cast aluminum axial flow fan at 87% efficiency, delivering 6,000 to 11,000 cubic feet of air per minute at 90 to 125 mph. Choice of Hypro 750 Pump for most solutions or, on model 125 EAP, a 5-gallon pump with mechanical agitation for wettable powders and abrasive liquids. Efficient spray jets meter *exactly* the right amount of mix, either oil or water, to center of high velocity air stream, insuring complete misting of concentrate. Spray jets can be changed quickly to alter droplet size. Turret size. Turret rotates 360° for full control of air blast.

Find out how Iron Age Mist Sprayers can make your shade tree preservation program *far more effective at less cost*. Mail coupon below for complete information.

IRON AGE MIST SPRAYERS give you these advantages:

- Greater community health and comfort
- Superior control of tree diseases, flies and mosquitoes
- More efficient use of power, materials, labor and equipment

OLIVER

IRON AGE

Finest in Farm Machinery

MAIL TODAY FOR FREE INFORMATION

THE OLIVER CORPORATION, Dept. 36, 400 W. Madison St., Chicago 6, Illinois

Gentlemen: Please send me information on Iron Age Mist Sprayers.

Name.....

Title.....

Address.....

City..... State.....

Catalogs for You

Write directly to the manufacturers or use coupon on page 25

New Traffic Controller

895 Modern traffic control, says the EAGLE SIGNAL CORP., MOLINE, ILL., demands a controller with accessible dial contacts, a clutch in motor for accurate reset, and an automatic gear mesh that is adjustable to gears of one-second steps. Eagle's multi-dial controller combines all of these features, plus motor shafts on ball or roller bearings, a synchronous disc motor, and cycle gears which are changeable from the front of the controller.

An Improved Small-Diameter Sewer Pipe

896 *Catalog 306* features a non-pressure sewer and drain pipe for outdoor underground installation. Watertight, with a high resistance to ground acids, alkalis, oils and sewer wastes, this non-metallic pipe won't corrode or tuberculate. For further information, write ORANGEBURG MFG. CO., INC., ORANGEBURG, N. Y.

Choosing a Good Fire Hydrant

897 A dependable fire hydrant, says the R. D. Wood Co., is always ready for instant use. It delivers full capacity with little pressure-loss from friction, is simply constructed, and requires a minimum of attention and repair. A full description of modern hydrants that meet these and other requirements, is available from R. D. WOOD CO., PUBLIC LEDGER BLDG., INDEPENDENCE SQ., PHILADELPHIA 5, PA.

Mechanical Joint Pipe

898 An illustrated booklet featuring a cast iron pipe that will stand the impact of heavy loads is offered by the AMERICAN CAST IRON PIPE CO., BIRMINGHAM 2, ALA. American Double-X Pipe comes in dimeters 3- through 48 inches, for conveying water, gas or sewage.

Street and Valve Box Castings

899 New valve, service and roadway boxes, meter boxes, manhole rings, covers and cast iron pipe, all interchangeable with the company's previous models, are introduced by BUFFALO PIPE & FOUNDRY CORP., BOX 55-STATION B, BUFFALO, N. Y. A detailed description of the firm's municipal castings will be furnished on request.

Sewage Pumps

900 Information on the company's full line of vertical centrifugal sewage pumps, and an introduction to Yeomans' Package Sewage Lift Stations, are available in a recently released bulletin from YEOMANS BROTHERS CO., 1999 N. RUBY ST., MELROSE PARK, ILL. Ask for *Bulletin No. 6251*.

New Power Unit Has Many Uses

901 The self-propelled Professional, with attachments, will mow lawns, fell trees, clear stumps, and cut weeds and heavy underbrush. Kut-Kwick's new power unit is also valuable in plowing and bulldozing. Write for details to KUT-KWICK TOOL CORP., BRUNSWICK, GA.

(See page 32 for more Bulletins)

Water where it's needed

In every realm of water consumption Layne is on the job. The world's industrial giants in manufacturing, petroleum, textiles, chemicals, paper—wherever water is used in quantity—rely on Layne engineered and constructed wells and pumps. Cities and farms, too, turn to Layne for dependable, economical water supplies.

Layne Does It All

Layne installs better water systems at less cost because Layne does the whole job. From initial surveys and test drillings to completed system and followup maintenance you deal with only one organization. Layne's 70 years of world-wide experience in every field of water supply equips us to serve you best.

Let Us Advise You

For information on any phase of water development, modernization, maintenance or pump equipment, consult your nearest Layne Associate Company. Or write Layne & Bowler, Inc., Memphis 8, Tenn.

Layne

Water Wells • Vertical Turbine Pumps • Water Treatment

Layne Associate Companies Throughout The World

You'll be PROUDER if it's A BLACKINTON BADGE

Proud of your badge? Sure you are and you'll be even *prouder* if it's a Blackinton Badge, because each year more and more departments are becoming increasingly conscious of quality in badges. . . . That's why they are turning to BLACKINTON — the finest badge for the money in the country.

DEALERS — *Why should you promote and sell Blackinton Badges?*

Because — (1) Blackinton sells only through authorized dealers in the United States and Canada — we protect and encourage your sales effort — we do not contact departments direct.

(2) *Lower* selling price with *higher* dealer discounts to you.

(3) Constant improvement in *design, finish* and *development.*

BLACKINTON

V. H. BLACKINTON & CO., INC., ATTLEBORO FALLS, MASS.

More Literature

Write directly to the manufacturers or use coupon on page 25

How to Simplify Your Tax Accounting

902 The booklet, *New Speed, Ease, Simplicity in Tax Accounting,* describes a machine that performs a variety of bookkeeping operations and produces tax records with infinite variations. In one operation the Burroughs Tax Accounting Machine will multiply; compute and total tax installments; write records, tax receipts, bills, and accumulate column totals. Get your copy by addressing the BURROUGHS CORP., DETROIT 32, MICH.

Aluminum Chain

903 Surround monuments, memorials, municipal parking lots, and other restricted areas with a chain that won't rust. The BISON METALS CORP., CROSBY BLDG., BUFFALO 2, N. Y., makes aluminum standard link-, lift-, and stud-link chain, that is both lightweight and maintenance-free. Unlike iron chain, it requires no cleaning, brushing or painting. Get full details from the company.

Greater Park Revenue

904 Increase park attendance and add to park revenue by installing a miniature railroad. An MT Miniature Train at Chicago's Lincoln Park Zoo carried 88,096 passengers in a 25-day period. Another such railroad installed at Pullen Park, Raleigh, N. C., netted $14,134.20 in little over a year. Write the MINIATURE TRAIN CO., RENSSELAER, IND., for detailed literature.

Speedy Pipe Coupling

905 *Folder 102* explains the use of the couplings on cast-iron, steel, and abestos-cement pipe — threaded or mechanical joint. It illustrates and discusses speedy methods of on-the-job assembly, and gives full information on prices, sizes and other specifications. Write MORRIS COUPLING and CLAMP CO., DEPT. K-38, ELLWOOD CITY, PA.

Torch Warning Signal

906 A distinctive signal to warn motorists of danger areas is marketed by THE TOLEDO PRESSED STEEL CO., TOLEDO 12, OHIO. The Toledo Self-Righting Torch operates in all kinds of weather; offers effective protection at low-cost. Write for literature.

Safe Seating for Outdoor Events

907 Communities often sponsor outdoor games, concerts, etc., that require a safe, comfortable, and at the same time, low-cost seating arrangement. MATT G. REEVES & CO., INC., 112 S. 12th ST., TAMPA, FLA., has designed durable portable bleachers for special occasions, and prefabricated grandstands for permanent installation. Write for literature.

Quick Installation of Water & Gas Lines

908 This new steel Pipe Puller and Pusher installs or renews gas and water lines under pavement. Model A, operated by one man, exerts 15 pounds of pushing pressure. Model B features three pushing speeds for different soils. For details, write THE TROJAN MFG. CO., 1113 RACE DR., TROY, OHIO.

(See page 34 for more Bulletins)

"170,000 Trolley Coach Passes and No Indication of Wear!"

Reports Fort Wayne Transit Company After Installing O-B Magnetic Blowout Unit

Runner Life Increased Seven Times

Magnetic Blowout Units and special runners increase runner life on both streetcar and trolley coach systems where shoe current collectors are used.

Fort Wayne Transit Company writes as follows regarding performance of O-B Magnetic Blowout Units and special runners on Calhoun Street where trolley coaches move at the rate of one a minute during the evening rush hour:

"Prior to the installation of the new type unit, we had been replacing insulated runners every ten weeks or approximately every 39,000 trolley coach passes.

"Although it has been ten months since these (the Magnetic Blowouts) were installed, and there have been 170,000 trolley coach passes, we have found no indication of wear. Unless something unforeseen occurs, we anticipate no replacement for another six months. If this is achieved, the runner will have seven times the wear of the old type."

We receive many reports similar to this, telling of increases in runner life following installation of O-B Magnetic Blowout Units in trolley coach or streetcar overhead. The Blowout lessens the burning effect of arcs at approach and section points or on insulated spacers.

If you would like to rid yourself of the problem of frequent runner changes, make a trial installation of Magnetic Blowout Units. You can install them and the special insulated runner on No-Bo Insulators now in your overhead or in stock.

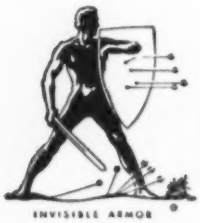
4325-T
No Bo
Ohio Brass
MANSFIELD OHIO, U. S. A.
LINE MATERIAL AND CAR EQUIPMENT FOR TROLLEY COACHES AND STREETCARS
IN CANADA, CANADIAN OHIO BRASS CO., LTD., NIAGARA FALLS, ONT.

KEEPING PACE

The steady growth of inland marine insurance throughout the country is evidence of its versatility. For example, insurance can be secured for retailers' goods shipped on land, by sea, and in the air; for manufacturers' merchandise consigned to various sections of the country: for contractors' equipment and mobile agricultural machinery wherever it may be. But these are only a few of the things that need inland marine protection, because anything that is moved from one place to another – on land, by sea, and in the air – is exposed to the same hazards to which stationary objects are exposed *plus* the dangers inherent in transportation. Only inland marine insurance provides the necessary safeguards.

In 1940, the NATIONAL SURETY MARINE INSURANCE CORPORATION was founded to fill the need for a larger market in the rapidly expanding inland marine insurance field. Since that time, National Surety Marine has kept pace with the nation-wide development, because it seeks always to tailor this functional coverage to the specific needs of each insured.

Has YOUR insurance program kept pace with the requirements of YOUR business? We invite your inquiries.



YOUR INVISIBLE ARMOR IS A NATIONAL SURETY MARINE POLICY

NATIONAL SURETY MARINE

INSURANCE CORPORATION, 4 Albany St., New York

National Surety Marine Insurance Corporation
4 Albany Street, New York 6, New York

Gentlemen:

I am interested in learning about: Transportation Insurance _____ Contractors' Equipment Insurance _____ Motor Truck Cargo Insurance _____ Other _____

Name _____

Address _____

City _____ Zone _____ State _____

My agent or broker is _____ Address _____

(This information will be forwarded to you through your agent or broker.)

Catalogs for You

Write directly to the manufacturers or use coupon on page 25

Cut Chemical Costs in Public Pools

909 The only way that a swimming pool operator can find out whether or not he's wasting chemicals, is by using a pool water test set. A reliable set is a good judge of water quality; will determine the most economical use of pool chemicals. How test equipment can be used to benefit the swiming pools in your community, is contained in literature from DOLPHIN SWIMMING POOL CO., ELMSFORD, N. Y.

Efficient Storage Batteries

910 *The Storage Battery, Its Fundamentals, Use and Maintenance*, explains the workings of a battery, and tells you how to keep it performing at maximum efficiency. For a copy of the 24-page booklet, write THE ELECTRIC STORAGE BATTERY CO., BOX 8109, PHILADELPHIA 1, PA.

For Any Emergency

911 Cities can use this new Emergency Car for rescue work, answering accident calls, and making ambulance runs. When equipped with pump and tank, the unit serves as an effective companion to municipal fire-fighting equipment. How the Emergency Car will benefit your community, is explained in literature from SHARPSVILLE STEEL FABRICATORS, INC., SHARPSVILLE, PA.

Provides Effective Street Lighting

912 Elliptical Refractors for luminaires with horizontal mercury lamps are introduced by the HOLOPHANE CO., INC., STREET LIGHTING DEPT., NEWARK, OHIO. These refractors provide better visibility with less glare. They offer a greater concentration of light at "danger spots," plus higher pavement brightness. Write for literature.

Safe Play Swings

913 Your community's playground need not be the scene of accidents due to an unassuming wooden swing, reports this manufacturer. Swing seats need not inflict serious head injuries on children; cause slips and falls, or actually split in two. ROSE MFG. CO., 1731 ARAPAHOE ST., DENVER 2, COLO., has designed a truly safe swing made of waterproof, Neoprene-treated belting, which offers both strength and protection. For details about Safe-Hi Swing Seats, address the manufacturer.

Vinyl Resins Combat Corrosion

914 With Exon 400 XR-61, a thermoplastic, nonflammable, extremely inert, fluorinated resin, you can bring solution coatings in contact with severe acids, alkalies and salt solutions under many corrosive conditions. Acclaimed as ideal for use on water storage tanks and in sewage treatment plants, this resin coating has good adhesion for metal, low moisture vapor transmission, low water absorption and good flexibility. Write for details to FIRESTONE PLASTICS CO., CHEMICAL SALES DIV., P. O. BOX 690, POTTSTOWN, PA.

with this...

you eliminate THIS—

Instant contact reduces lost time and mileage ...makes each day's work more productive!

Centralized Control Saves Money. Your foreman at base station console coordinates activities, keeps progress report up to the minute every minute of the day.

Get more work out of men and equipment, cut "down time" and "deadheading," make each day's operations pay off in greater profits by using Motorola 2-way Radio. Instant contact centralizes supervision, coordinates work, reports breakdowns in seconds, helps you meet and *beat* deadlines. Boosted efficiency pays for your Motorola installation many times over.

Eight exclusive Motorola features guarantee precision selectivity, time-tested durability. "Permakay" wave filter eliminates 15 nuisance tuning adjustments forever. Get the facts *now* about this new, money-saving construction tool.

Write to Dept. 2286-AC today

Rugged Sensicon Dispatcher. Built to take jolts and shocks of rough roads. Serves as fixed or mobile unit. Features sealed-in selectivity.

national **Motorola®** RADIO COMMUNICATIONS *service*

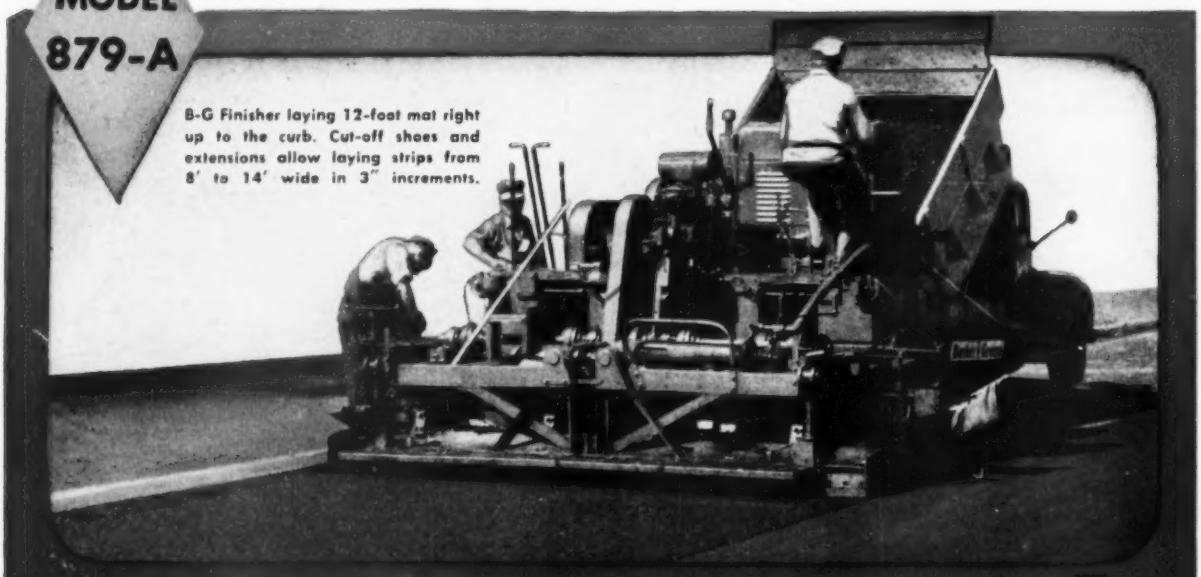
Motorola Communications & Electronics, Inc.
A SUBSIDIARY OF MOTOROLA, INC.
900 N. Kilbourn Ave., Chicago 51, Illinois • Rogers Majestic Electronics Ltd., Toronto, Canada

WHEN ANSWERING THIS ADVERTISEMENT, PLEASE MENTION "ITEM 5373"

Barber-Greene

TAMPING-LEVELING FINISHER

MODEL 879-A



B-G Finisher laying 12-foot mat right up to the curb. Cut-off shoes and extensions allow laying strips from 8' to 14' wide in 3" increments.

SPREADS material evenly

COMPACTS to uniform density

LEVELS automatically without forms

Unequaled method for properly laying a smooth, level surface for paving streets, highways, runways, parking lots, tennis courts and similar jobs.

The world's most widely used paving machine: gives superior performance in laying every type of surface—hot or cold—from clay stabilized gravel to high-type sheet asphalt.

Tamps, levels and strikes off simultaneously: *automatically* measures the correct amount of *compacted* material, produces a level surface that is maintained under rolling and traffic.

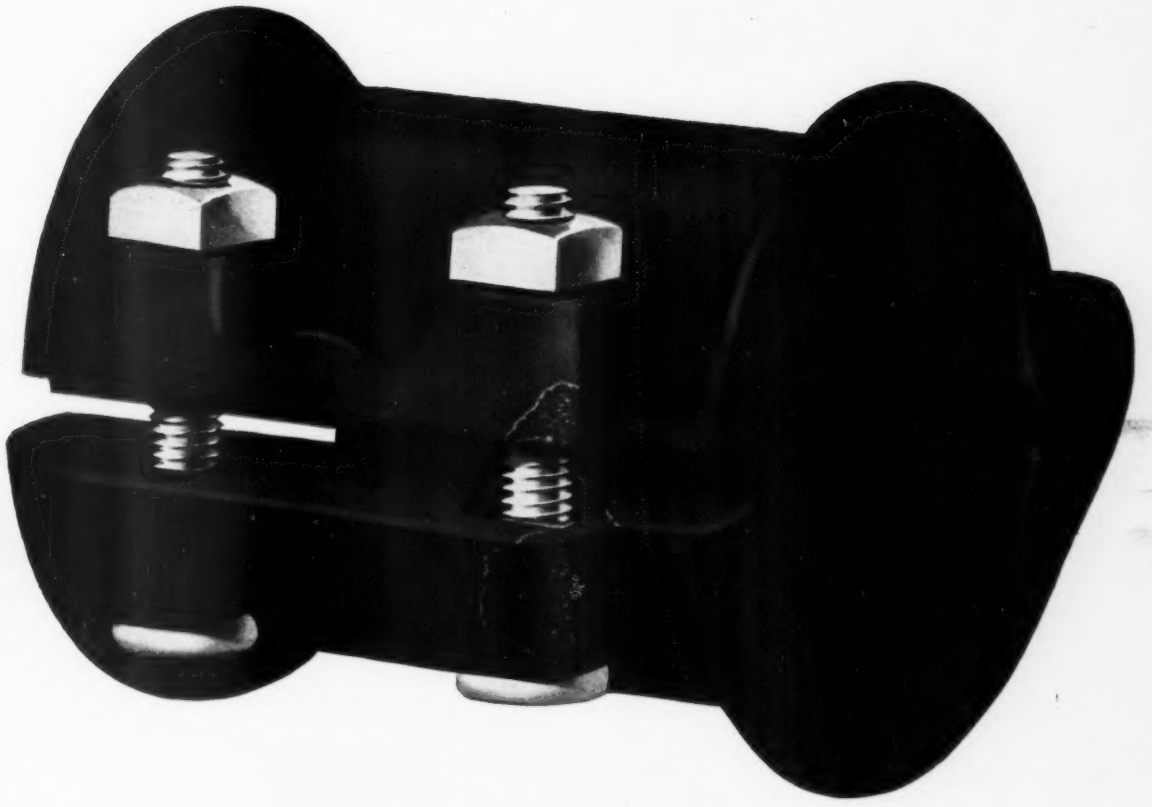
Compacts material as it is being laid: while it is hot and workable—assures a superior surface of uniform density, even when laid over an irregular subgrade.

Whether paving over new subgrade or resurfacing existing pavement, the B-G leveling principle assures a smooth, ripple-free surface without the need of forms . . . abrupt changes in subgrade cannot change the grade line of the mat.

High capacity with low maintenance: saves truck time, reduces the amount of rolling required and size of crew.

see your **B-G distributor** ...or write

Barber-Greene Company, Aurora, Illinois, U. S. A.



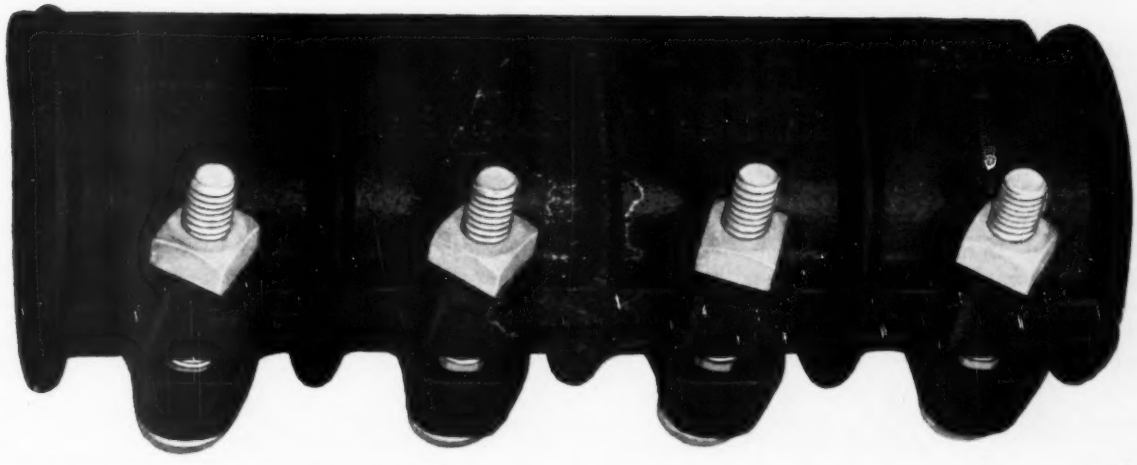
EMERGENCY PIPE CLAMP

SKINNER-SEAL

PIPE LINE CLAMP

For repairing corrosion leaks and splits in pipe lines! Permanent under any pressure or temperature. Sizes ½" to 12" inclusive. Stocked by all supply stores.

M. B. SKINNER COMPANY
SOUTH BEND 21, INDIANA, U. S. A.



TRYING TO LICK A TRAFFIC PROBLEM? The Urban Transit program tells how to meet the ever-growing problem of traffic congestion and inadequate parking facilities. Designed to stir public action, the unusual film "Going Places" dramatizes the strangulation of our cities by the traffic monster and shows the most economical and practical solution.

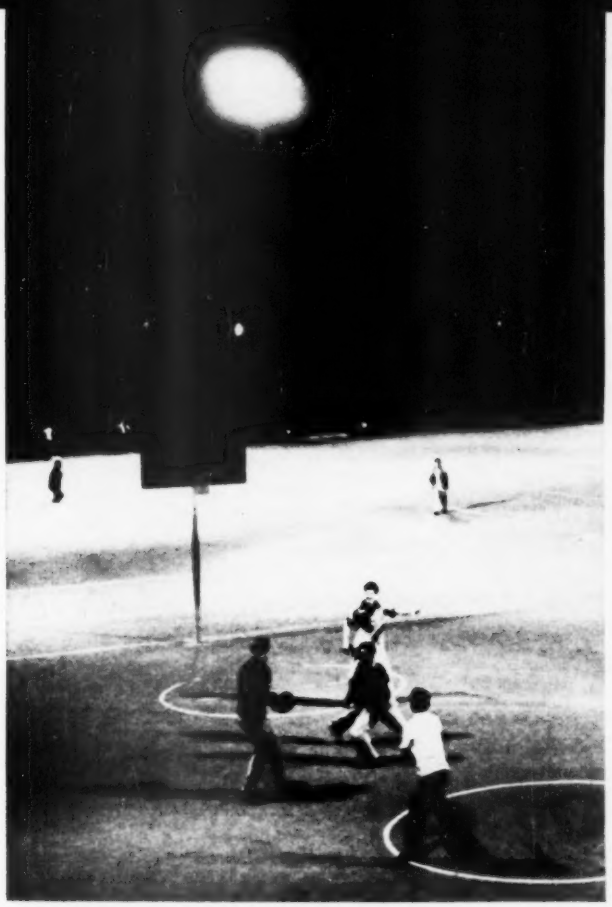
Four dramatic film programs to help solve your community problems

As your city expands, its problems grow. As concentrated populations spread to the suburbs, additional supplies of water must be provided, sewage facilities become increasingly inadequate, streets become jammed during rush hours. As communities expand, a demand for better recreational facilities is created.

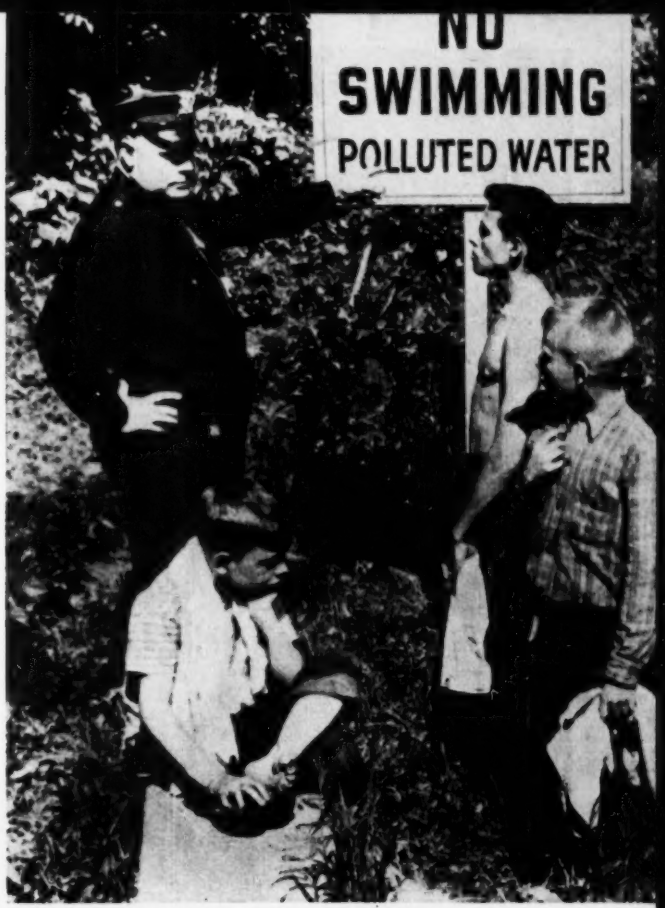
Often it is only through co-operative community action that cities can meet these problems. General Electric offers a series of timely film programs ***through your local electric utility*** to help you stimulate your community's thinking about solutions to its particular problems. Each program consists of an educational motion picture or slidefilm, an authoritative manual for civic leaders, and supplementary literature. Non-commercial in nature, each of these programs helps to arouse public support for community improvement by showing you how other progressive communities have met the same problems.

These programs are available from General Electric on a loan basis, or they may be purchased at reproduction cost. If you wish more information on these film programs, ***contact your electric utility.*** Or you can call your local G-E Apparatus Sales Office, or mail the coupon to General Electric Company, Schenectady 5, N. Y.

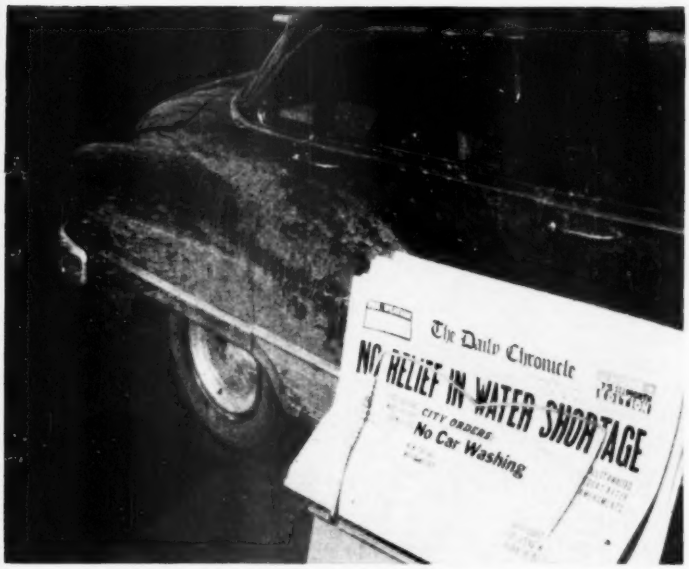
More Power to America



GIVE YOUR CITY "A CHANCE TO PLAY." A film program which includes a "March of Time" documentary shows that adequate recreation facilities are as necessary as good schools, public health facilities. The manual for civic leaders will help you organize for community action on this issue.



DOES YOUR CITY NEED CLEAN WATERS? The prize-winning film, "Clean Waters," has helped many cities win public support for elimination of sewage and pollution in lakes and streams. This program is popular with civic organizations like Chambers of Commerce, Service Clubs, and conservation groups.



IS YOUR WATER SUPPLY ADEQUATE? You can enlist support for improvement or extension of water-supply facilities with this kit, which includes the film "Pipeline to the Clouds," winner of the international "Oscar" for documentaries in Milan, Italy.

CALL YOUR ELECTRIC UTILITY, YOUR G-E APPARATUS SALES OFFICE, OR MAIL THIS COUPON TO:

General Electric Company
Apparatus Sales Division, Sec. D 684-2
Schenectady 5, N. Y.

Yes, I am interested in the following programs:

√ **for details and prices**
× **on a loan basis**

☐ **(GEA-4938-5A) SEWAGE TREATMENT**
(25-minute, 16-mm, sound-color motion picture).

☐ **(GEA-4938-15) OUTDOOR RECREATION**
(20-minute, 16-mm, sound motion picture)

☐ **(GEA-4938-17) WATER SUPPLY**
(25-minute, 16-mm, sound-color motion picture)

☐ **(GEA-4938-20) URBAN TRANSIT**
(20-minute, 16-mm, sound-color motion picture)

NAME .....

TITLE .....

STREET .....

CITY ..... **STATE** .....

GENERAL ELECTRIC

GOLDAK makes the world's finest LOCATORS

THE *Dualtronic* COMBINATION
PIPE & LEAK DETECTOR

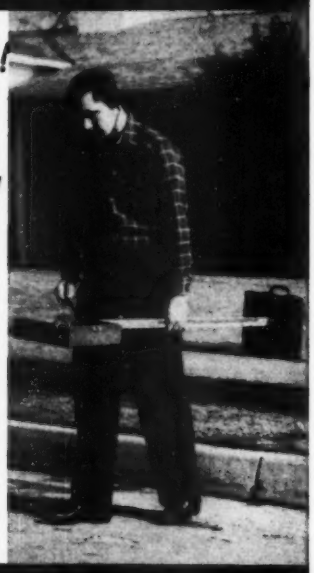
The "Dualtronic" is acclaimed by Municipalities and Utilities throughout the world, because of the time and labor savings effected by one instrument doing the work of two so efficiently and effectively. Ruggedly built! Lightweight! One man operation! The "Dualtronic" is the answer how to cut costs 50%!

Lightweight! Rugged!

GOLDAK
FEATHERWEIGHT MODEL 87
PIPE LOCATOR

Guesswork eliminated. Pinpoint location of pipes, mains, gates, tees, etc. One man operation, total weight 11 lbs.! Strong, positive location signal guaranteed by Licensed circuits and Microtuning, exclusive with Goldak. Lasts a lifetime, guaranteed performance.

Write for FREE literature!



The GOLDAK Company
Leading Makers of PIPE LOCATORS Since 1933

1544 W. GLENOAKS BLVD.
GLENDALE 1, CALIFORNIA

GRAVELY blows Snow Troubles away!

Solve your snow removal problems with the new Gravely Snowblower! Clears walks, drives, hard-to-get-to-places quickly and economically.

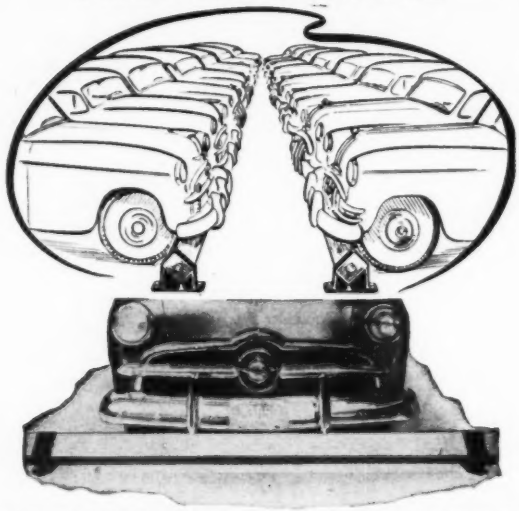
Powerful 5 HP Gravely does 21 year-round maintenance jobs faster, better, easier—21 tools to choose from—all powered by the same rugged, dependable tractor.

All gear drive, power reverse, city tested for 32 years!

Ask for your copy of "How To Solve Snow Removal Problems". Write for it today!

GRAVELY TRACTORS, INC.
BOX 1273 DUNBAR, WEST VIRGINIA

IDEAL FOR "OFF THE STREET" PARKING
WITH OR WITHOUT PARKING METERS



SALIENT FEATURES OF HAR-BAR BARRIERS

1. High enough to stop your car.
2. Low enough to clear your bumper guards.
3. Barrier is above ground — no drainage problem.
4. Barrier is above ground — no rotting of wood.
5. Automatically spaces your cars.
6. Follows contour of your ground.
7. Easily installed — just line up and drive the anchor pins.
8. Easily moved — just pull the anchor pins.
9. Easy to clean under.
10. Easy to maintain.
11. Installed on any kind of surface — black top, cement, macadam, gravel or cinders.
12. It really dresses up your parking lot.
13. You always stop against your tire — no shock.
14. All Castings are aluminum — no rusting.

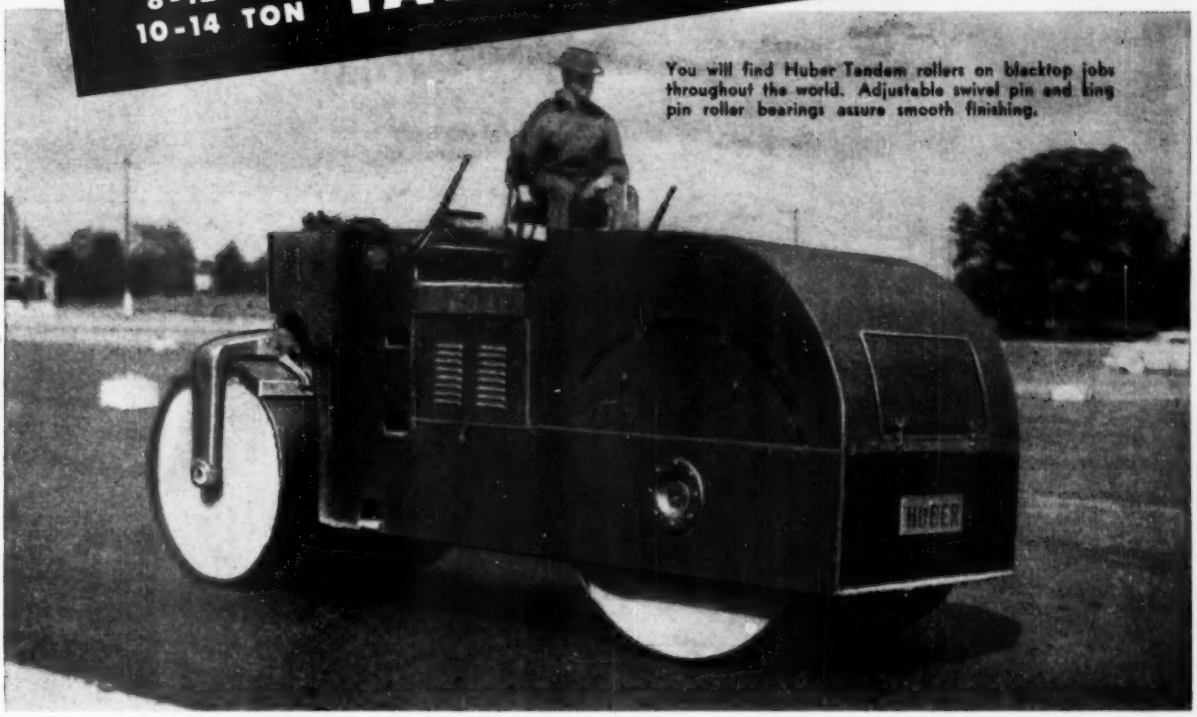
Send us a plot plan of your parking lot—we do the engineering free.

HARRIS - BARRIER INC. 5407 N. PENNSYLVANIA STREET INDIANAPOLIS 5 - INDIANA

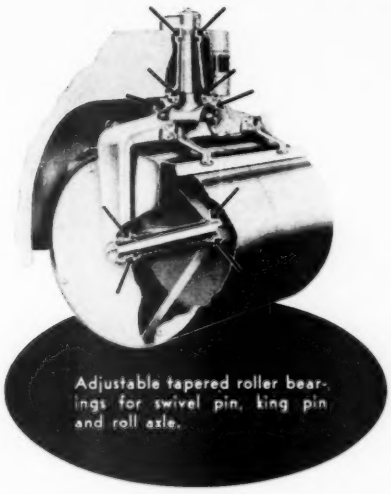
HUBER

The only roller that can give "factory new" guide roll performance for the life of the machine . . .

8-12 TON
10-14 TON TANDEM ROLLERS



You will find Huber Tandem rollers on blacktop jobs throughout the world. Adjustable swivel pin and king pin roller bearings assure smooth finishing.



Adjustable tapered roller bearings for swivel pin, king pin and roll axle.

Only Huber Tandem Rollers can give you "factory new" guide roll performance for the life of the machine. The reason: only Huber has adjustable tapered roller bearings on both ends of the long swivel pin, as well as on the king pin and the roll axle.

Simple adjustments in the field keep the entire guide roll assembly "factory new" in performance. There is no looseness, no wobble to cause scuffing.

The full story of these and other features of the Huber 8-12 ton and 10-14 ton tandem rollers are described fully in Bulletin T-152. Write for a copy or see your nearest Huber representative.

HUBER MANUFACTURING COMPANY
MARION, OHIO, U.S.A. — Since 1863

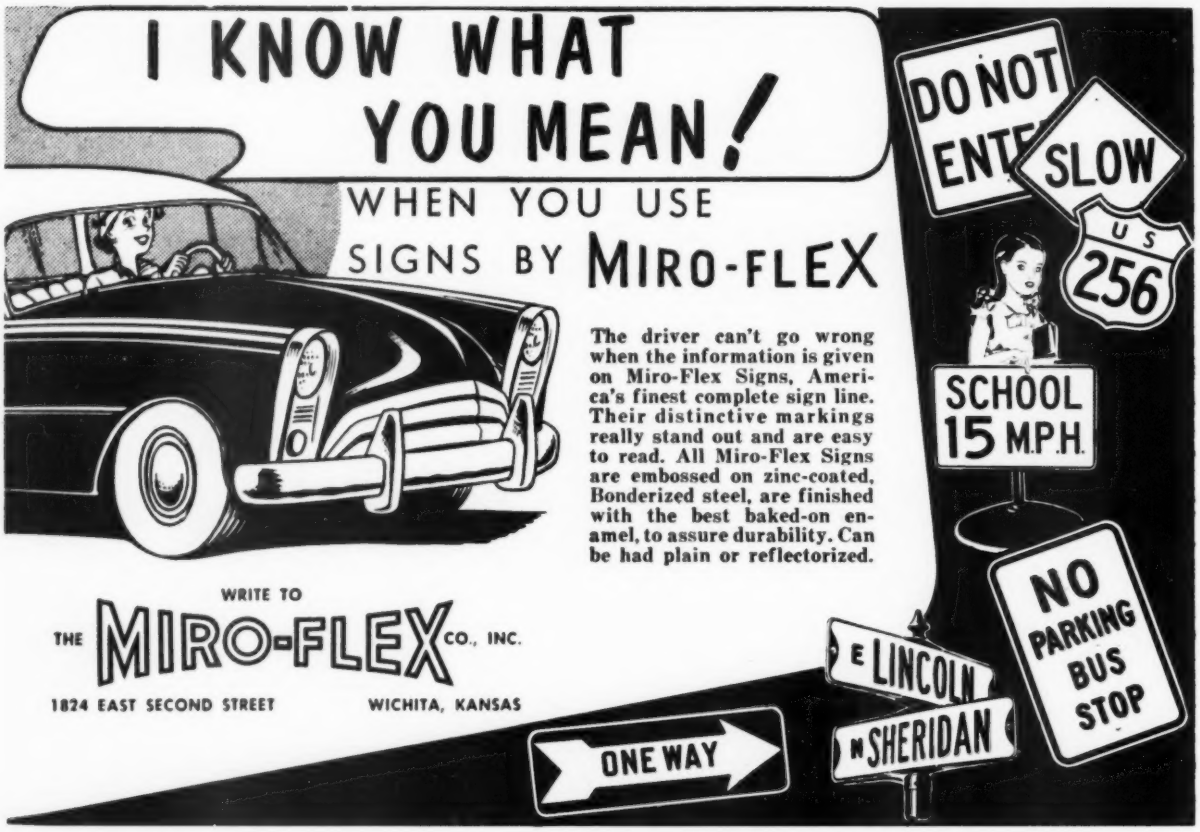
HUBER

MANUFACTURERS OF HUBER MAINTAINERS, GRADERS AND COMPLETE LINE OF ROLLERS

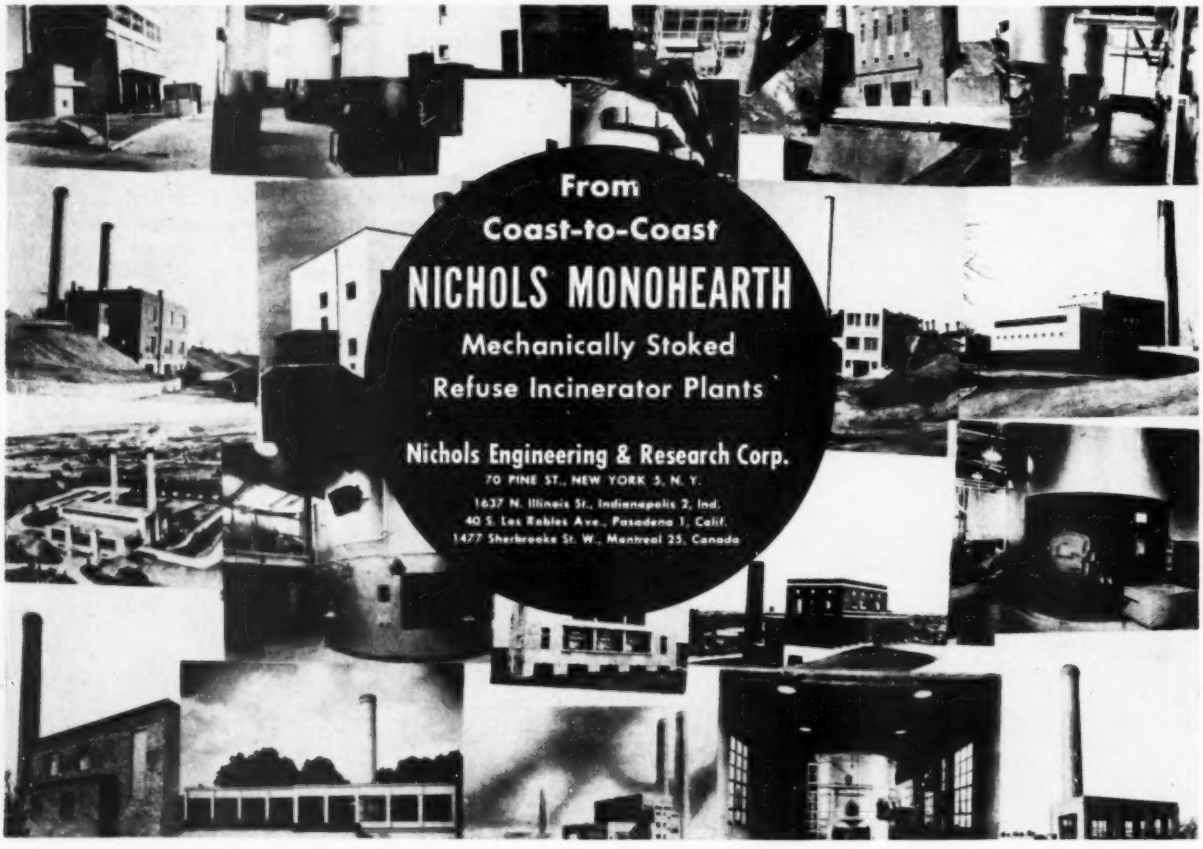
I KNOW WHAT YOU MEAN!

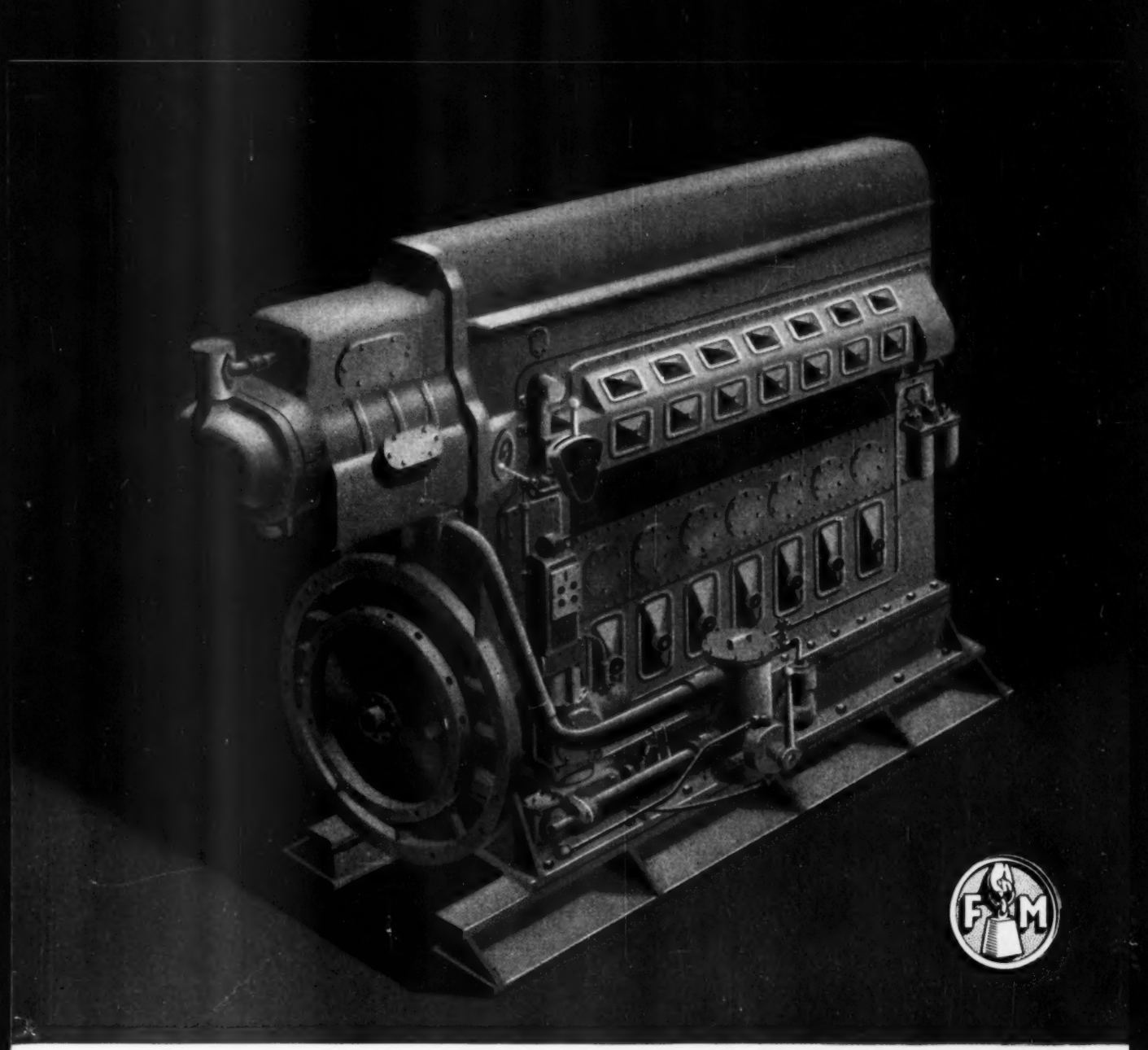
WHEN YOU USE SIGNS BY **MIRO-FLEX**

The driver can't go wrong when the information is given on Miro-Flex Signs, America's finest complete sign line. Their distinctive markings really stand out and are easy to read. All Miro-Flex Signs are embossed on zinc-coated, Bonderized steel, are finished with the best baked-on enamel, to assure durability. Can be had plain or reflectorized.



WRITE TO
THE MIRO-FLEX CO., INC.
1824 EAST SECOND STREET WICHITA, KANSAS


From
Coast-to-Coast
NICHOLS MONOHEARTH
Mechanically Stoked
Refuse Incinerator Plants
Nichols Engineering & Research Corp.
70 PINE ST., NEW YORK 5, N. Y.
1637 N. Illinois St., Indianapolis 2, Ind.
40 S. Los Robles Ave., Pasadena 1, Calif.
1477 Sherbrooke St. W., Montreal 25, Canada



The Fairbanks-Morse Opposed Piston Diesel Model 38F 5¼. 225 to 750 horsepower. Diesel, Dual Fuel and Spark-ignition options. Other O-P engines available in horsepower ratings to 2400.

Some engines are not good enough

Yes, there are some diesels which just do not have what it takes for the job. They cannot satisfy the owner's pride in smooth, trouble-free operation and are lacking in the ability to square a balance sheet of operational costs and profits. For the more difficult jobs, many engines are simply not good enough.

Maybe you should pay more and get more!

If you want more engine-hours with fewer man-hours, *then* you should have the F-M Opposed Piston Diesel which will cost a little more and give you much, *much* more.

Fairbanks, Morse & Co., Chicago 5, Illinois.

FAIRBANKS-MORSE

a name worth remembering when you want the best

DIESEL AND DUAL FUEL ENGINES • DIESEL LOCOMOTIVES • RAIL CARS • ELECTRICAL MACHINERY • PUMPS • SCALES • HOME WATER SERVICE EQUIPMENT • FARM MACHINERY • MAGNETOS

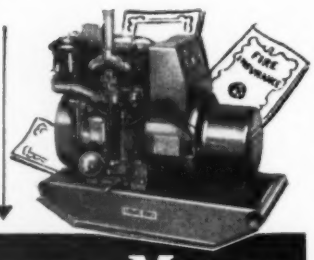
A SPECIAL ORDER *for* CHICAGO!

The City of Chicago recently required 14 special type bucket machines with "height extensions", allowing the load to be emptied directly into the dump truck. "Flexibles" was its choice. Pictured above are these "made-to-order" machines just prior to leaving the Flexible plant in Lima, Ohio. We have, or can "tailor", equipment required to meet your city's special needs. Write for FREE CATALOG.

Flexible SALES CORPORATION
3786 DURANGO AVE., LOS ANGELES 34, CALIF.
(BRANCHES IN PRINCIPAL CITIES)

AMERICA'S LARGEST MANUFACTURER OF PIPE CLEANING TOOLS AND EQUIPMENT

What about "NO PANIC" INSURANCE?



... a FAIRBANKS-MORSE Stand-By Power Generating Set!

When the lights stay on, elevators run and other automatic machinery keeps working, chances for panic, injuries and loss of life are greatly reduced. That's why stand-by electric power generating sets are a *must* for schools, hospitals, theaters, municipal buildings and other places where large numbers of people assemble.

If you do not have that kind of "panic insurance," let us send you the facts, free, about Fairbanks-Morse generating sets. They are available in capacities up to 40,000 watts. Write Fairbanks, Morse & Co., 600 S. Michigan Ave., Chicago 5, Ill.

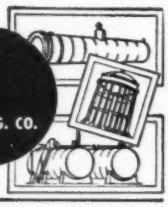
FAIRBANKS-MORSE
a name worth remembering when you want the best
WATER SYSTEMS • GENERATING SETS • MOWERS • HAMMER MILLS • PUMPS
MAGNETOS • MOTORS • SCALES • DIESEL LOCOMOTIVES AND ENGINES

FOR almost a century Cole elevated tanks have provided a dependable water supply for mills and communities. Cole quality is assured by careful, experienced designing and watchful supervision from blueprints to finished tank. Send us your inquiries for tanks from 5,000 to 2,000,000 gallons — stating capacity, height to bottom, and location. *Write for latest Cole catalog — "Tank Talk."*

98 YEARS OF EXPERIENCE IN BUILDING TANKS

Established 1854

R. D. COLE MFG. CO.
NEWNAN, GEORGIA



ELEVATED TANKS • VESSELS • CYLINDERS
TOWERS • BINS • STANDPIPES

Garbage collection in your city can be

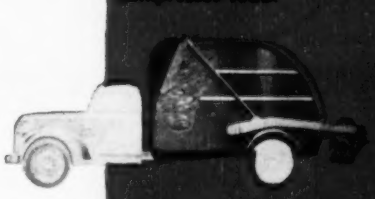
SO SIMPLE...SO ECONOMICAL!

LOOK at all the Heil Colecto-Pak features that mean sanitary, easy, low-cost collection of garbage and refuse. See how you can solve your garbage collection problems *simply and economically.*

- **Colecto-Pak's totally enclosed, water-tight body keeps everything out of sight and smell. Body capacity—10 cu. yds.**
- **Low loading height makes it easy for your crews to handle refuse and garbage without exertion or spilling.**
- **Hydraulically operated packer plate compresses material to eliminate waste space and accumulate bigger load. This means fewer trips to the dump.**
- **Simple Heil Hydraulic operating system insures smooth, silent, long-life performance with a minimum of maintenance. No skilled labor required to operate.**
- **Quick, clean final discharge of load is assured by tapered body construction and Heil Twin-Arm Hoist.**

These are only a few of the many Colecto-Pak features it will pay you to investigate. Next time you buy, be sure to specify Colecto-Pak. Write for further details

Cut-away view showing bucket dumping and packer plate in open position. As bucket lowers, packer plate compresses load.



Cut-away view shows packer plate in closed position. Material is being compressed toward rear of body to eliminate waste space.

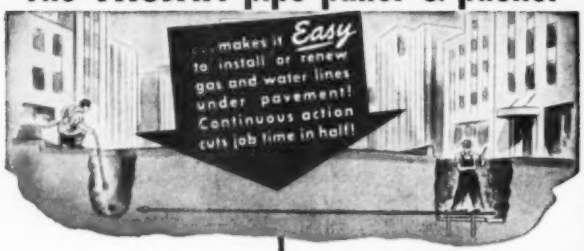
GB-1

THE HEIL CO.

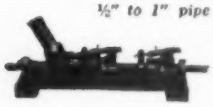
Dept. 43123, 3043 West Montana Street • Milwaukee 1, Wisconsin

Factories: Milwaukee, Wis. — Hillside, N. J.

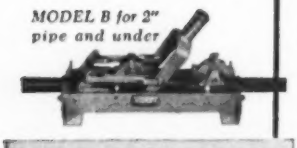
The TROJAN pipe puller & pusher



MODEL A for ½" to 1" pipe



MODEL B for 2" pipe and under



With a Trojan, no resetting of grip is required—job goes twice as fast. Heavy duty, all steel construction makes it 4 times stronger than cast iron pusher.

Model A needs only 5 ft. trench. One man can easily lift it in and out of trench and install the average service. 15 tons of pushing pressure possible.

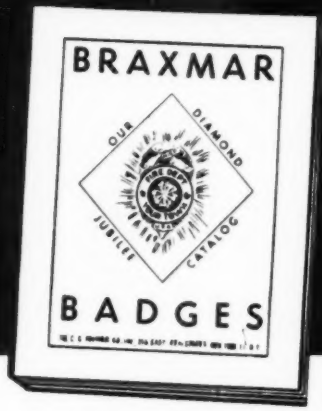
Model B has 3 pushing speeds for different soils. Reversible in 30 seconds.

Double XX heavy, 30" push pipe travels straighter.

WRITE TODAY FOR FULL DETAILS

The TROJAN Manufacturing Co.
1113 Race Drive • Troy, Ohio
41 Greenway, Hamden, Conn. • Box 465, Memphis, Tenn.

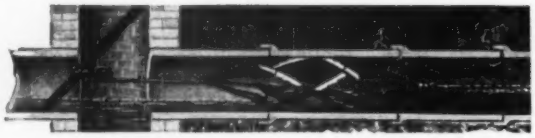
our New Catalog is yours



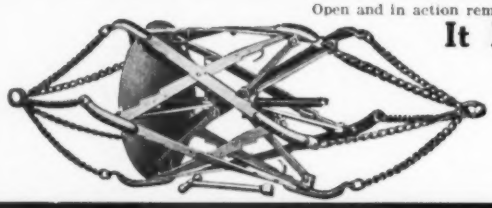
It contains a wonderful collection of the finest badges we have made in our 75 years. It's yours for the asking—every fire company—every equipment dealer should have it. Please write on your company stationery —

John O. Veit, President . . John O. Veit, Jr., Sec. & Treas.
The C. G. BRAXMAR CO., INC.
216 East 45th St. New York 17, N. Y.

EXPANDING ROOT CUTTER & SEWER CLEANER



Open and in action removing roots and caked sediment like this.



It Fits in on Every Sewer Cleaning Job

Adjusted in 30 seconds to fit any sewer from 8 to 30 inches.

Will clean the entire sewer wall, top, and sides as well as the bottom, cutting and removing the roots and caked sediment, putting the sewer system in almost 100% clean condition.

Write for our new catalog on complete sewer cleaning equipment.

EXPANDING SEWER MACHINE COMPANY
108 East Walnut St. **Nappanee, Ind.**

Is Your City Up-to-Date in Its Operation Methods?

THE AMERICAN CITY
470 Fourth Ave., New York 16, N. Y.

Please send me ..... copy (copies) of your Municipal Official's Handbook (Price per copy is $3.00)

A check covering this order is enclosed ..... Please bill me ..... (Check one)

Name .....

City or Company .....

Address .....

City..... Zone..... State.....

A good way to find out is to read about the practical experience of other city officials who have problems like yours. This experience is described in the "Municipal Official's Handbook" by William S. Foster, Engineering Editor of *The American City*. The latest methods on street construction and maintenance, snow removal, street cleaning, and refuse collection and disposal are explained in detail. Write us today for your copy.

Why your microfilming costs are lower with Recordak

Only Recordak lets you choose from a versatile line of microfilmers.

And in this there's a distinct advantage . . . distinct savings for you.

For no one microfilmer can be called the most economical for every company. Requirements vary much too much—the ideal microfilmer for one could be an unwise investment for another.

Recordak, in recognizing this fact, has created its line of microfilmers *with all requirements and all budgets* in mind. You never have to order a microfilmer with features and refinements which can't be used *profitably* in your office.

Thus, Recordak has made it possible for even the smallest companies to gain savings—over and above all microfilming costs—which are proportionate to those realized by the largest Recordak users. *Something* to remember—definitely.

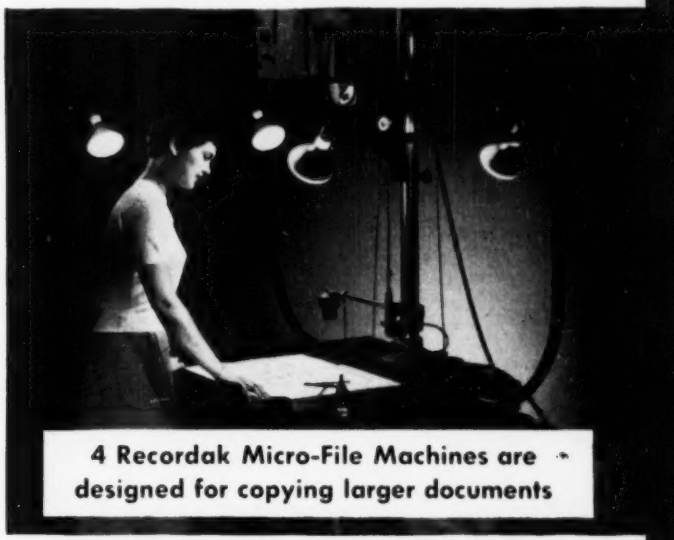
5 Types of Recordak Microfilmers are designed for copying office records

For example: The Recordak Bantam Microfilmer with 40-1 reduction ratio—the highest available today—gives you greatest number of pictures at lowest per-picture cost. Built-in automatic feeder feeds over 500 check-size documents per minute—over 200 letter-size ones. All controls are at the operator's finger tips. Accessory lens kits—at slight additional cost—also permit microfilming at reduction ratios of 32-1, 24-1, 19-1. Prices including one lens kit: Purchase, $1800; Rental, $40 per month.

Write today for facts on the complete line of Recordak Microfilmers *now offered on a most attractive purchase or rental basis.* Recordak Corporation (*Subsidiary of Eastman Kodak Company*), 444 Madison Avenue, New York 22, N. Y.

All prices quoted are subject to change without notice.

"Recordak" is a trade-mark



4 Recordak Micro-File Machines are designed for copying larger documents

For example: The Recordak Micro-File Machine, Model D, is recommended for documents up to 25 x 36 inches in size. Bound volumes can also be microfilmed. The Model D gives you a choice of reduction ratios ranging from 8 to 1 to 20 to 1. And 16 or 35mm Recordak Micro-File Film can be used interchangeably. Approximately 40 exposures can be made per minute. Electric motor automatically operates shutter, advances film, actuates device which holds film flat during exposure. Price, $2285; FOB nearest Recordak office. Rental plan also available.

1928 25TH ANNIVERSARY 1953

RECORDAK

(Subsidiary of Eastman Kodak Company)

originator of modern microfilming—and its application to insurance routines

How the best product in its field has been made still better

Not overnight, of course—but by a series of improvements gained through research and development resulting in *modernized* cast iron pipe. Tougher, stronger, tuberculation-proof pipe with sustained carrying capacity. Centrifugally cast and, when needed, centrifugally cement-lined.

All of our member companies have centrifugal casting facilities for producing tougher, stronger *modernized* cast iron pipe. All can supply this pipe with cement lining centrifugally applied, resulting in sustained carrying capacity, reduced friction loss and lower pumping costs.

If you want the most efficient and economical pipe ever made for water distribution, your new mains will be laid with *modernized* cast iron pipe with either bell-and-spigot or mechanical joints. Cast Iron Pipe Research Association, Thos. F. Wolfe, Managing Director, 122 So. Michigan Ave., Chicago 3.

CAST Q IRON

The Q-Check stencilled on pipe is the Registered Service Mark of the Cast Iron Pipe Research Association.

Modernized **cast iron**

This cast iron water main, uncovered for inspection, is in its 106th year of service in Boston, Mass.—one of more than 45 cities with century-old water or gas mains in service.

pipe for Modern Waterworks Operation

Low cost, pure filtered water, for small and medium size municipal water works now possible with a—

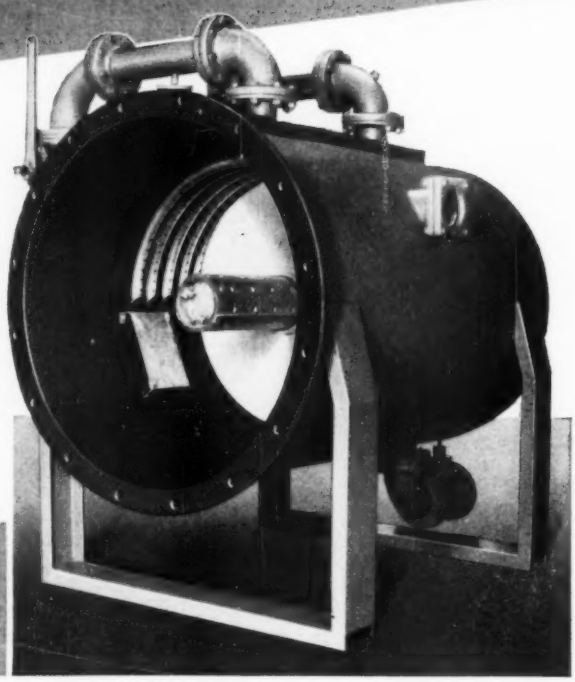
SPARKLER Model SCJ self cleaning water filter

The model SCJ filter is a diatomite slurry feed filter designed to produce the highest quality pure water at a maintenance cost much lower than usually can be attained with older type filters.

This filter can be cleaned in two to five minutes either by flushing off with the built-in jet spray or by back-washing or a combination of both. The filter media is usually a synthetic cloth such as orlon which pre-coats quickly and washes clean rapidly.

A high efficiency diatomite slurry feeder, which operates in conjunction with the SCJ Sparkler Filter, adds greatly to the length of cycle between cleanings . . . resulting in lower operating costs. Operators can be easily trained . . . no highly skilled specialized personnel required. Floor space occupied by the SCJ is relatively small for the extremely large volumes handled. Single units are available in sizes to handle up to 96,000 G.P.H. . . . or over 1,000,000 gallons per day. And . . . this is important . . . the largest unit uses less than 1000 gallons of water to clean the filter.

Write for plans and prices on your requirements.
Personal engineering service on all installations.

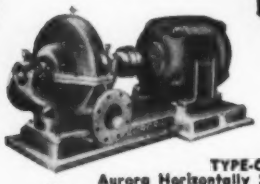


SPARKLER MANUFACTURING CO. MUNDELEIN, ILL.

Manufacturers of industrial filters for over a quarter of a century.

Member of a Great Pump Family

There is a PUMP by *Aurora* for every pump job.



TYPE-OD
Aurora Horizontally Split-Case, Double Suction, Single Stage Centrifugal Pump.

For general water supply for municipalities, industries, office buildings, institutions—also—for handling liquids, chemical solutions, oils etc., in a wide variety of industries. Write for Bulletin 105-M for further details.

DISTRIBUTORS IN PRINCIPAL CITIES

AURORA Always PUMPS

AURORA PUMP COMPANY

SUBSIDIARY OF THE NEW YORK AIR BRAKE COMPANY
66 Loucks St., AURORA, ILLINOIS

FLORIDA VACATION

$59.50 WEEK

with COUNTRY CLUB PRIVILEGES

Unbelievable but true, many brick ground floor villas with bedroom, living room, electric kitchen, tile bath, completely furnished, $59.50 weekly. Two and three-bedroom villas slightly higher. At the ocean, playgrounds, shopping center, private country club.

Free booklet.
Write today.

Ellinor Village

ORMOND BEACH, FLA.

DAYTONA BEACH AREA

why ? ? ? ? ? ? ? ? ?

are so many parking lots metered with DUNCAN-MILLER

BRADENTOWN, FLORIDA lot equipped with 225 Duncan-MILLER 10-hour parking lot meters. Rate is 2-hours for 5c, adjusted to Nickels, Dimes, and Quarter.

● That's an easy one to answer, especially by those cities who've used Duncan-MILLER curb meters over the past 16 years. Financially speaking, these cities will tell you there's absolutely no question as to Duncan-MILLER'S revenue producing dependability. When parking is extended to off-street lots, the preferred choice is for the Duncan-MILLER meter as a never-failing source of funds for financing their lots.

● Building the same meter too, for over a decade and a half gives us the know-how to make a rugged "work-horse" type of unit, with more TIME and RATE combinations than any other parking lot meter, using NICKELS, DIMES, and QUARTERS.

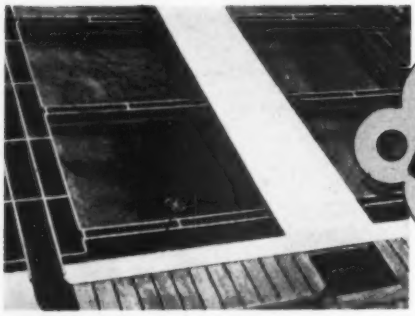
Ask us for details.

DUNCAN PARKING METER CORP.

835 N. WOOD ST., CHICAGO 22, ILL. ● FACTORY at HARRISON, ARKANSAS

Manufacturers of AUTOMATON fully automatic and MILLER manual parking meter

4 KEYS TO BETTER WATER

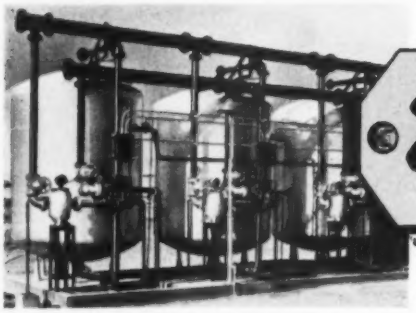


1. PRECIPITATORS

PROBLEM: Turbidity, Color, Hardness, Iron, Alkalinity

PRECIPITATORS remove dirt, color, hardness, iron, alkalinity, silica, fluorides, taste, odor by coagulation, precipitation, and settling. Fully utilize the Permutit sludge-blanket principle for big savings in space . . . chemicals . . . time!

Horizontal or vertical designs of any capacity. Tailor-made units to *triple* capacities of old-fashioned settling basins.

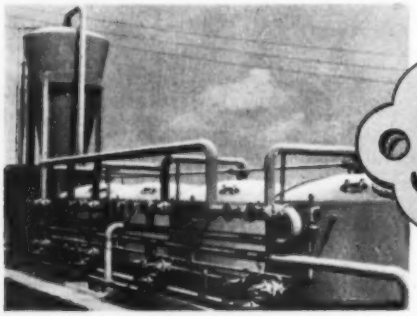


2. SOFTENERS

PROBLEM: Hardness with Some Iron, Manganese

SOFTENERS quickly reduce hardness to zero . . . while removing troublesome iron and manganese. Simplest method. Gives positive results with no waste disposal problem. Features ease of operation, low installation and operating costs.

Pressure or gravity units or batteries—any capacity. Permutit automatic controls give uninterrupted supply of softened water, save operator's time, increase efficiency of old plants.



3. SPIRACTORS®

PROBLEM: Hard, Clear Water

SPIRACTORS soften on new principle—*catalytic precipitation*. Hard water and lime-soda swirl upward through catalyst granules. Precipitates deposit by accretion, fall to bottom, are easily disposed of. Water at top is soft, clear, ready for filtration. *Total reaction time is eight minutes.* Lime treatment with no bulky sludge disposal problem.

4. FILTERS

PROBLEM: Traces of Dirt, Oil, Iron

FILTERS trap the last traces of suspended impurities, deliver a crystal-clear effluent. Permutit rapid sand filters are available in vertical or horizontal steel shells, and gravity types in wood or concrete. These units feature Permutit automatic controls. Wash, rewash and return to service—with no operator present!

FREE WATER ANALYSIS! Write today for free bulletins on these or any other water conditioning processes. Permutit will analyze your water supply, make recommendations without obligation. THE PERMUTIT COMPANY, Dept. AC-12, 330 West 42nd Street, New York 36, N. Y.

PERMUTIT®

WATER CONDITIONING HEADQUARTERS FOR OVER 40 YEARS

dynamic new engine
gives the popular D Motor Grader
increased work power

The thousands who own Allis-Chalmers Model D's know the ability of these versatile machines to do outstanding work on both construction and maintenance jobs. Now — with extra power and added features — the Model D sets even higher performance standards in the low-cost grader field.

Dynamic New Power-Crater Engine gives the Model D reserve power to : (1) handle the same loads in higher gear or bigger loads in the same gear, (2) increase road speeds, especially where there are grades, (3) reduce need for shifting, thus lengthen clutch life, (4) give better all-round maneuverability. There's plenty of power to crowd while loading with the rear-end loader. Engine throttles down to half speed *and still does the same job* — on low-speed work.

Leaning front wheels* enable the Model D to handle new jobs . . . counteract side-draft on ditching and bank cutting.

Power circle turn* permits easy positioning of blade from operator's seat. When finishing subgrade or blacktop, for example, moldboard can be readily rotated without disturbing road surface.

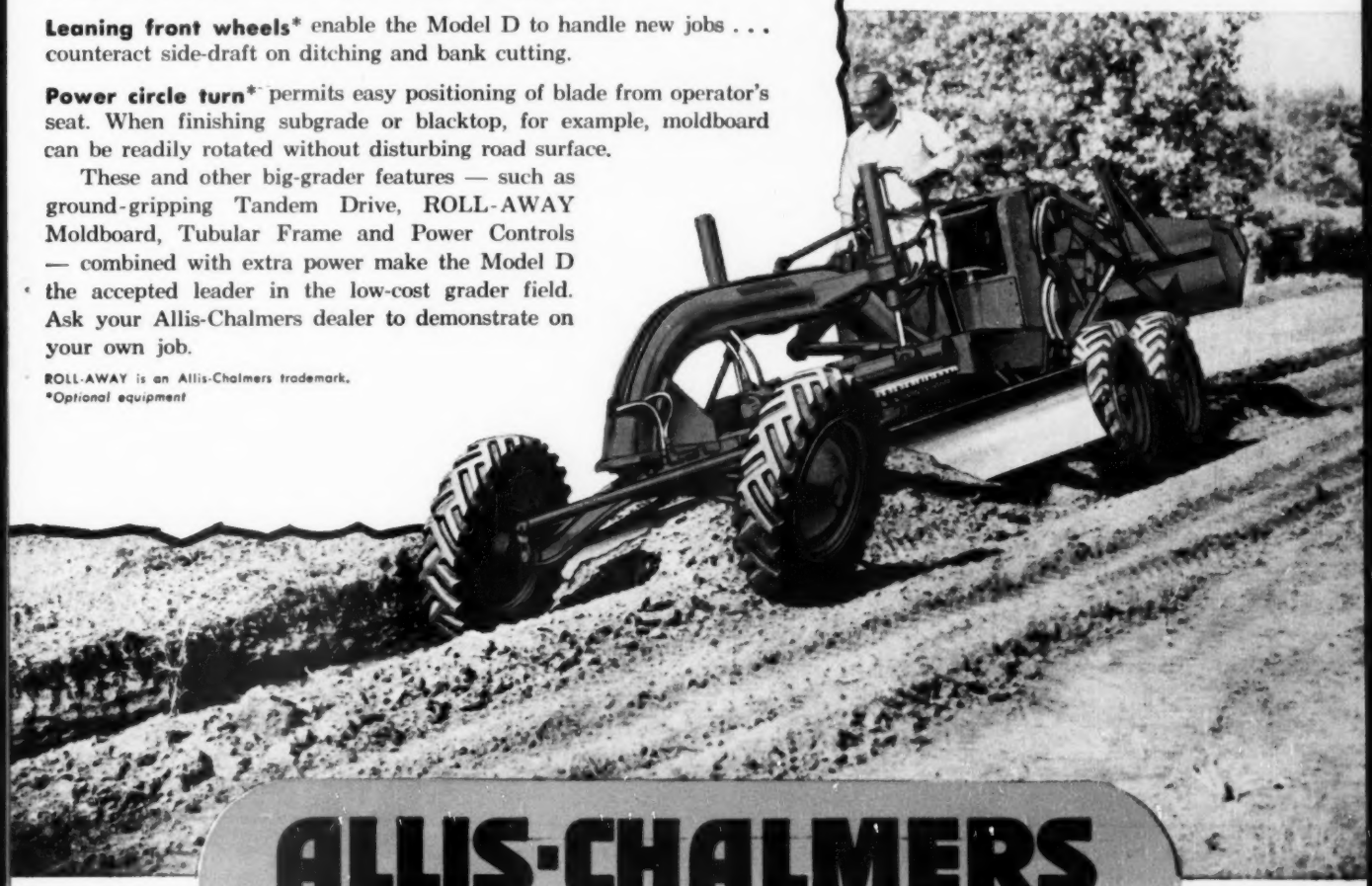
These and other big-grader features — such as ground-gripping Tandem Drive, ROLL-AWAY Moldboard, Tubular Frame and Power Controls — combined with extra power make the Model D the accepted leader in the low-cost grader field. Ask your Allis-Chalmers dealer to demonstrate on your own job.

ROLL-AWAY is an Allis-Chalmers trademark.
*Optional equipment

POWER-CRATER Engine brings *truly modern* power to the Model D

This new engine boosts power while using less fuel per horsepower. It obtains high-octane performance when using regular gasoline. Only by watching a new Model D work can you fully realize what this truly modern engine adds to its performance!

Weight: 8,800 lb. (bare) • Brake Horsepower: 50
4 Speeds forward to 25.6 mph.
Reverse Speed 3.3 mph.



ALLIS-CHALMERS
TRACTOR DIVISION • MILWAUKEE 1, U. S. A.

"Shoveloader saves our Taxpayers $150 per day during Spring Clean-Up"

John Storey, Street Commissioner, Cedar Rapids, Iowa

ONE MAN REPLACES TWELVE!

It used to take 4 crews of 3 men with hand shovels to keep four trucks loaded with debris and refuse from Cedar Rapids streets during the spring clean-up season. Today *one man* on a Lull Shoveloader does a faster and cleaner job—getting more efficiency from trucks, and saving the city at least $150 per day.

This is only one of the many ways the versatile Shoveloader cuts the city's operating budget the year round. All summer it picks up and loads sweeper piles from the streets. In fall it is kept busy with leaf pick-up and general clean-up, and in winter it is used for snow removal.

Recently a tornado blew over many trees. Shoveloader immediately went to work pulling stumps (by hooking a chain to welded eye at rear rim of bucket) and loading branches, logs and stumps onto trucks.

"This unit has really paid for itself," says Mr. Storey.

Lull Shoveloaders mount on Case, Minneapolis-Moline, Oliver and Sheppard Diesel tractors. Bulldozers, cranes, snow-buckets, forks or sweeper attachments are easily added.

write for Bulletin AD-32B or contact your Lull distributor for complete information.

THE BAKER-LULL CORPORATION

Formerly the Lull Manufacturing Company

358 WEST 90th STREET • MINNEAPOLIS 20, MINN.

A Subsidiary of the Baker-Raulang Co., Cleveland 2, Ohio

Baker Lull

handling equipment

see what Burlington, Vermont has done with PARK-O-METERS

Officer Charles R. Ables, Burlington's one-man Parking Meter Department does all of these things in connection with the 737 Park-O-Meters in use in Burlington. 1) collects coins from all meters, 2) sorts, counts and banks all revenue, 3) keeps all records, 4) does all repair and maintenance service, 5) cleans and overhauls on a continuing schedule . . . and keeps smiling.

Burlington, Vermont
August 8, 1953

Mr. G. A. Hale, President
Magee-Hale Park-O-Meter Company
Oklahoma City 2, Oklahoma

Dear Mr. Hale:

You will find enclosed my story on our parking meters. You may use any part or all of this story as you wish. The report is all favourable, as I do not know of any fault that I can find with the Park-O-Meters. I think it is the best meter on the market.

This story is of my own free will, and if additional information is needed I will try to get it for you.

Yours truly

Charles R. Ables.

Charles R. Ables
Meter Maintenance

Annual revenue from Burlington's off-street (*above*) and on-street Park-O-Meters is now running at $62,000.00 rate.

BURLINGTON (pop. 55,000), in northern Vermont, experiences exceedingly low winter temperatures, yet repair and service jobs amount to only one or two per day on the 737 Park-O-Meters . . . usually due to attempted misuse or mischievous tampering. Only two mainspring have broken in two years. Park-O-Meters were installed in 1947 and 1948 with some recent additions for new parking lots.

Check

Are You Using a COAGULANT with These Advantages?

FERRI-FLOC brings you these superior features and more. It will coagulate waters and wastes over wide pH ranges as well as provide excellent flocculation in softening systems. FERRI-FLOC may be easily and safely handled in any type of standard equipment.

- ✓ **1 Coagulation over wide PH ranges, color, turbidity and manganese removal.**
- ✓ **2 Rapid floc formation and rapid settling.**
- ✓ **3 Increased filter runs.**
- ✓ **4 Quality effluent low in iron and aluminum.**
- ✓ **5 Excellent taste and odor control.**

Water Treatment
Coagulation of surface or well waters. Aids taste and odor control. Effective in lime soda-ash softening. Adaptable to treatment of nearly all industrial water or wastes.

Sewage Treatment
Coagulation over wide PH range. Efficient operation regardless of rapid variations of raw sewage. Effective for conditioning the sludge prior to vacuum filtration or drying on sand beds.

TENNESSEE CORPORATION
ferri-floc
FERRIC SULPHATE

Free Literature!

Let us send you free literature on the above products. Send card or letter to Tennessee Corporation, 617-629 Grant Building, Atlanta, Ga.

SULPHUR-DIOXIDE
SO_2

SULPHUR-DIOXIDE

SULPHUR-DIOXIDE is effectively used for dechlorination in water treatment and to remove objectionable odors remaining after purification.

COPPER SULPHATE

COPPER SULPHATE will control about 90% of the microorganisms normally encountered in water treatment plants more economically than any other chemical.

TC TENNESSEE CORPORATION

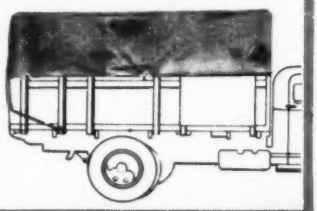
TENNESSEE CORPORATION
617-29 Grant Bldg., Atlanta, Georgia

PROTECTION ✓ EFFICIENCY ✓ for your CITY

Shuredry SALVAGE COVERS for your Fire Department

Cut water and smoke damage with SHUREDRY Green-Bak Salvage Covers — they're pressure impregnated by an exclusive Fulton dry-treatment process. All seams are waterproof. SHUREDRY Covers are light, pliable and easy to handle. Specify SHUREDRY — your Fire Equipment Dealer has them.

FULTON COVERS for your Sanitation Trucks

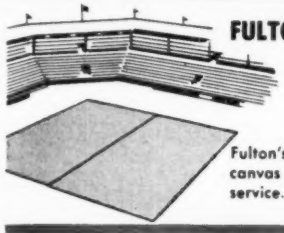


Fulton makes a complete line of top quality Tarpaulins and Truck covers in any size you need.

Fulco CONCRETE CURING MATS for your Road Department

Fulco Mats produce a more uniform paving job, minimize the possibility of cracks and do in 72 hours what took about 10 days under the wet-burlap-wet-earth method. Fulco Mats can be used 50 to 75 times. They're economical.

FULTON COVERS AND TARPS for your Softball Baseball and Football Fields



Fulton's special treatment of the heavy canvas duck, assures long, economical service.

Write your nearest Fulton branch for information and prices.

Fulton
BAG & COTTON MILLS

ATLANTA • SAVANNAH • NEW ORLEANS • DALLAS • ST. LOUIS
DENVER • LOS ANGELES • KANSAS CITY, KANS. • MINNEAPOLIS
NEW YORK CITY • WINTER HAVEN, FLA. • SAN FRANCISCO
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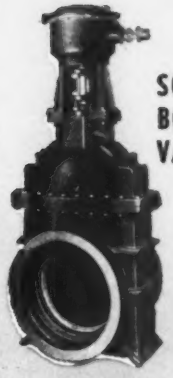
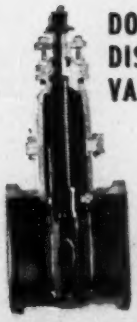
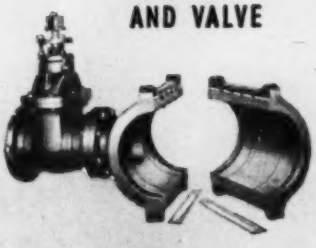


SQUARE BOTTOM VALVE

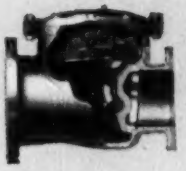


DOUBLE DISK VALVE

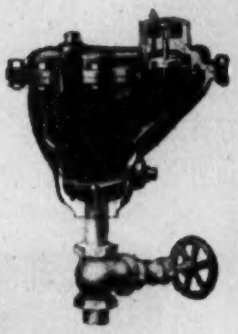


TAPPING SLEEVE AND VALVE

MOTOR OPERATED VALVE



CHECK VALVE



AIR VALVE

FIRE HYDRANT

Cutting Valve Costs for a lifetime

This interesting assembly consists of a 20 inch Rensselaer valve with reducing and increasing sections for installation in a 30 inch pipe line. The integral type gear case is designed for the working pressure of the valve and is packed with oil for lifetime service.

There is no need for a concrete vault for valves equipped with integral type gear cases. Just install valve boxes, shovel back the dirt and forget it, for this is the Rensselaer double disc valve with the well known wedge action. On closing, when the gates reach a position opposite their seats, the powerful wedging action presses them squarely and firmly against their seats. It is impossible to damage the stem threads or throw the stem out of alignment, and the gates open and close easily.

The valve you buy today should serve faithfully for many years. Why not provide maximum insurance against future maintenance costs by putting in Rensselaer valves in the first place?

Rensselaer VALVE COMPANY, TROY, N. Y.

GATE VALVES • FIRE HYDRANTS • SQUARE BOTTOM VALVES • CHECK VALVES • AIR RELEASE VALVES

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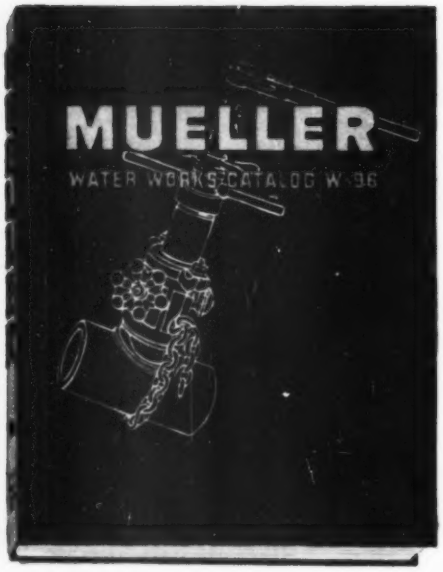

The new Mueller Water Works Catalog is now off the press and its distribution has almost been completed. If you have not received your copy, please drop us a note — Dept. A-36, Mueller Co., Decatur, Illinois.

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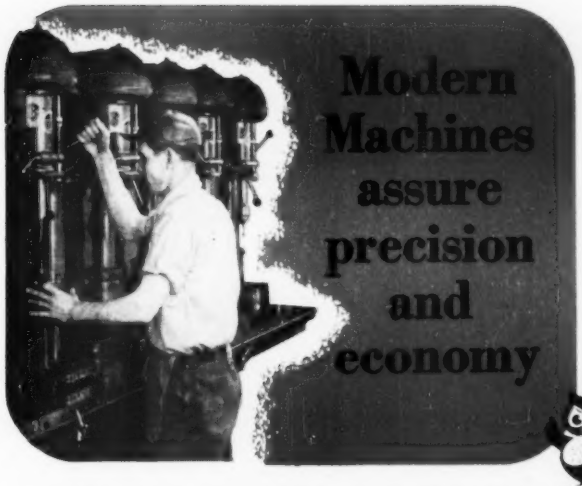

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Built to give "extras" in results

Extra care in the making provides the "extras" in accuracy, sturdiness, dependability and true economy that make Karparks the choice of far-sighted officials. Four models — Superior, Husky, Twin-O-Matic, Unimatic — have every worthwhile feature.

Again Available — The Versatile

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A greater flow of materials makes it possible for many more cities to have this feature packed, two-car parking meter. Write for data.

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Karparks are manufactured by The Herschede Hall Clock Co. *makers of America's finest clocks.*

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is the sum of good parts . . .

▲ *Testing the compressive strength of a concrete cylinder*

Testing the tensile strength of steel reinforcing wire ▶

The finest design and the most accurate workmanship cannot result in a superior product *unless* the materials used are of the highest quality. That's why Lock Joint assures the excellence of each of its pipes by constantly testing both the finished product *and* the individual materials used.

. . .

In the Company's research and testing laboratory reinforcing steel is tested for tensile strength . . . sand and aggregates are analyzed and classified . . . specimens of concrete in daily use are tested for compressive strength . . . gasket rubber undergoes varied and rigorous tests for elasticity and durability . . . *all* ingredients are definitely proven before they are allowed to be put to use.

. . .

These carefully tested materials, together with Lock Joint's conservative design and precise workmanship, result in a finished product unexcelled in the pressure pipe field. If your project calls for pipe 16″ in diameter or larger, designed for pressures common to water works practice, specify Lock Joint Concrete Pressure Pipe—the pipe that's tested from start to finish and backed by nearly half a century of pipe manufacturing experience.

SCOPE OF SERVICES—*Lock Joint Pipe Company specializes in the manufacture and installation of Reinforced Concrete Pressure Pipe for Water Supply and Distribution Mains 16″ in diameter or larger, as well as Concrete Pipes of all types for Sanitary Sewers, Storm Drains, Culverts and Subaqueous Lines.*

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Established 1905

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Solve these Winter Maintenance Problems with SOLVAY Calcium Chloride

For Cold Weather Concrete Paving and Repairs

Get high early strength concrete with standard cement plus Solvay Calcium Chloride

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NORDBERG *SUPAIRTHERMAL** FOUR-CYCLE V -TYPE ENGINE

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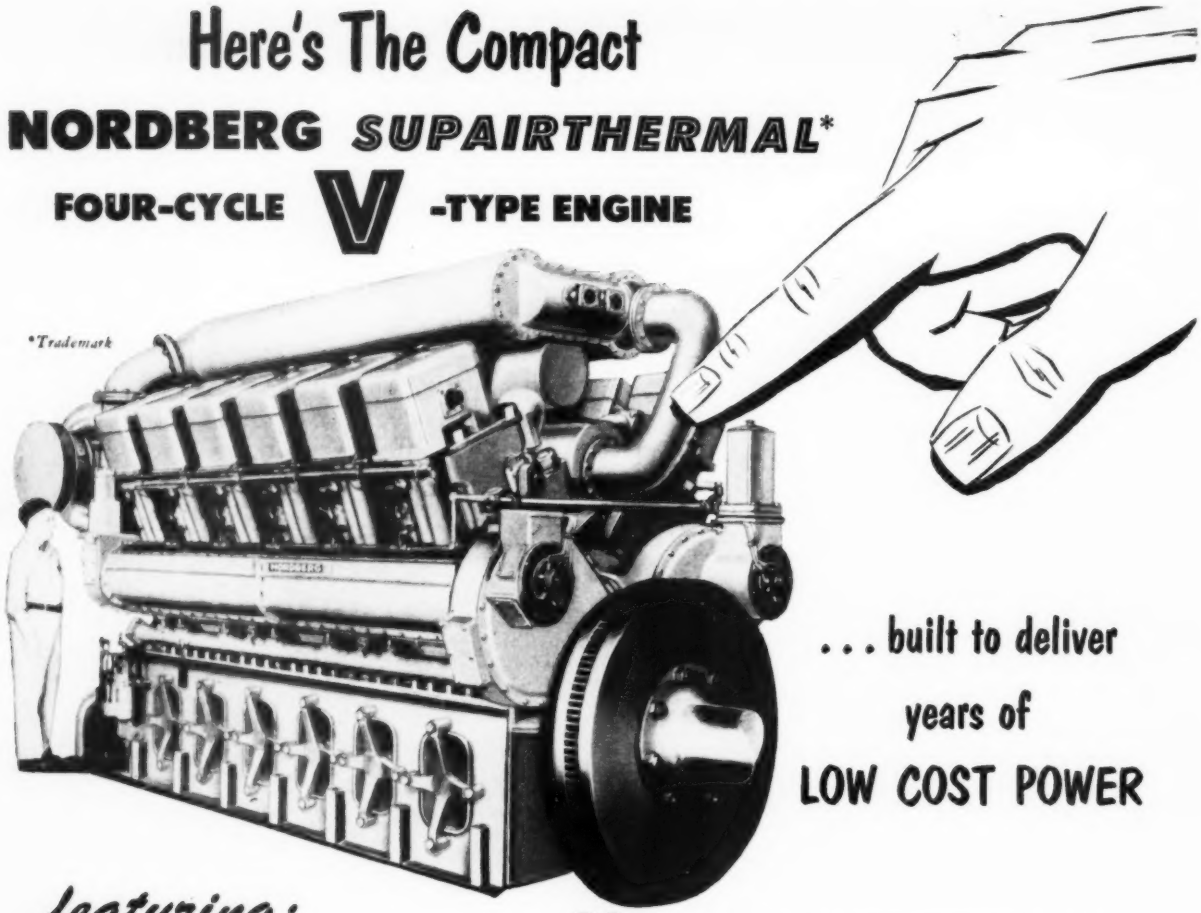

. . . built to deliver years of LOW COST POWER

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- ☆ DOUBLE THE HORSEPOWER OF NATURALLY-ASPIRATED ENGINES
- ☆ HEAVY-DUTY CONSTRUCTION THROUGHOUT
- ☆ MORE HORSEPOWER PER GALLON OF FUEL
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NORDBERG 13"x16½" *SUPAIRTHERMAL** four-cycle V-Type engines are designed and built to meet the increasing demand for more compact, high efficiency Diesel, Duafuel® and Spark-Ignition Gas engines for continuous, economical operation in a wide range of power applications.

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P1053

● A freeze-up can mean costly shop repairs or a minor "on-the-spot" change. American Frost Bottom Meters have a simple patented construction that permits the bottom casing to break by tension and relieve the internal pressure in the event of a serious freeze-up.

All the more delicate—most costly parts—including the gear train—are protected. The breaking pressure is pre-tested at the factory. Hundreds of thousands of meters in service are proof of the effectiveness of this design.

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as traffic rumbles on!

Reinforce all hard-to-get-at pipe joints with

CLOW

MECHANICAL JOINT

BELL SPLIT SLEEVES

F-1205:
For pipe sizes 3 to 16 in.

Under the constant impact of ponderous, ever-increasing rail and vehicular traffic on our highways and railways, crossing underground water pipe lines require added protection. That is why foresight is so important. *Play it safe*—don't wait for a break. Install Clow Mechanical Joint Bell Split Sleeves as *original equipment* wherever pipe must pass under highway truck routes and railroad tracks. Specify them for marshlands and under water—everywhere pipe is not readily accessible in case of an emergency. Clow Mechanical Joint Split Sleeves are easy to install—no lead, jute, or calking.

Write for illustrated circular containing full particulars and other pertinent information

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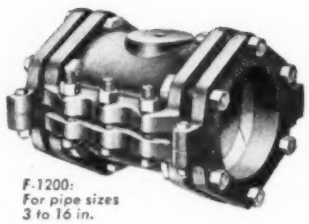

F-1200:
For pipe sizes 3 to 16 in.

F-1200 Clow Mechanical Joint Straight Split Sleeves are ideal for permanent repairs to pipe barrels. 12-in. and smaller sizes will repair any lengthwise break up to 8 in.; 14- and 16-in. sizes, to 17 in.

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GREATER COMPACTION

SHORTER WHEELBASE

LESS MAINTENANCE

STREAMLINED BODY

IMPROVED HYDRAULIC SYSTEM

THE NEW IMPROVED ROTO-PAC

If you operate one or more *Roto-Pac* units, you know for yourself that it is unequalled in speed and efficiency. The *new improved Roto-Pac* breaks its own performance records.

An increase in power, through redesign, results in 20% greater compaction; providing for larger loads without increasing body size.

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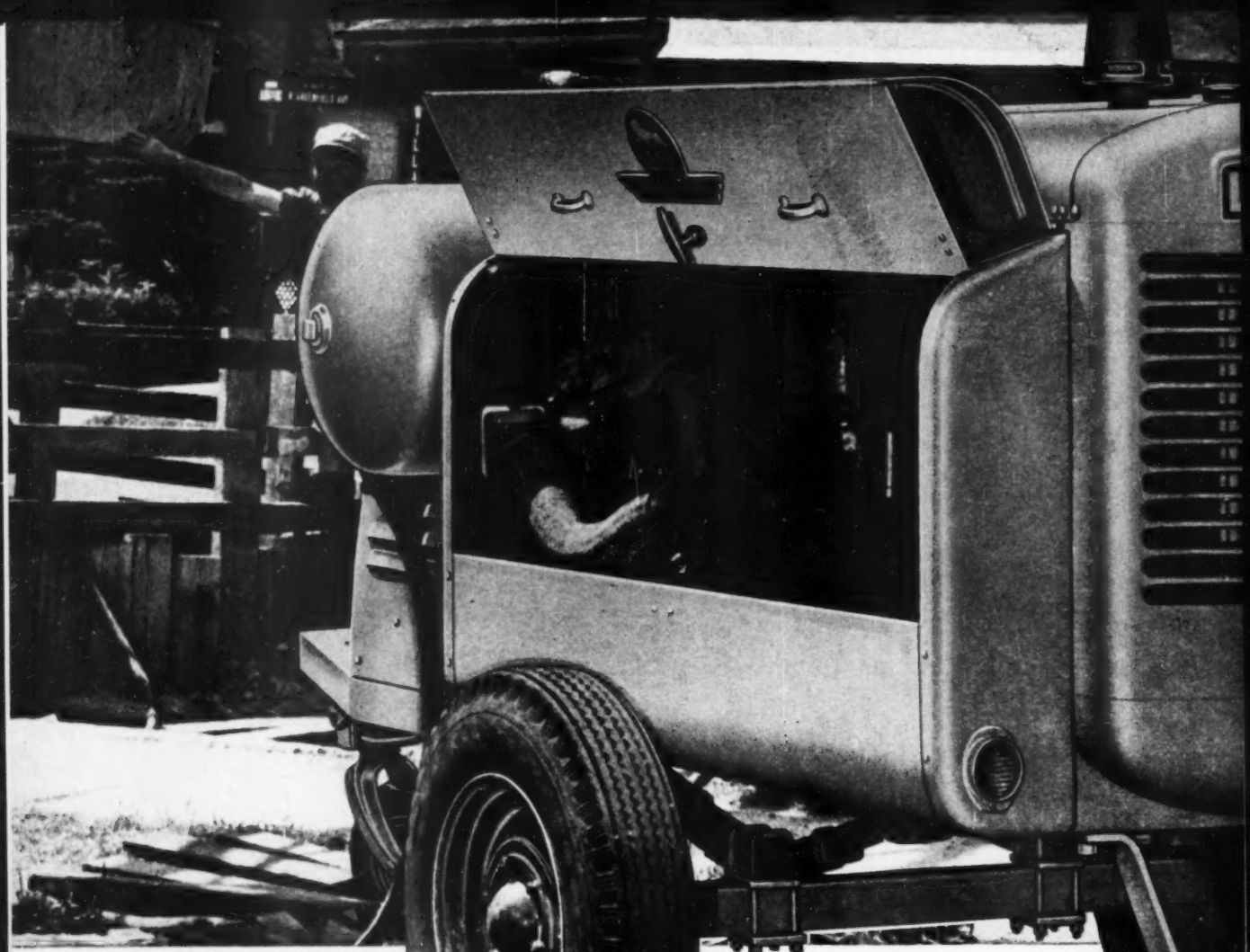

You can get an Airmaster that's exactly right for your job. There are 9 sizes—and 14 models — 60 cfm, 85 cfm, 105 cfm, 125 cfm, 185 cfm, 210 cfm, 250 cfm, 365 cfm, 600 cfm, gas and diesel. So you don't have to penalize yourself by working with pressures that are too low — or by operating a machine that's too big and too expensive for the job to be done.

Like the 125-cfm gas unit shown here, every Airmaster is powered by a heavy-duty Le Roi engine designed especially for compressor service.

LeRoi *gives you more for your money!*

MORE AIR POWER! MORE FOOTAGE! MORE PROFITS!

Le Roi-CLEVELAND Paving Breakers are available in sizes from 18 to 80 lbs. They really pack a wallop — make short work of breaking up the hardest concrete. Protective air cushion in front end assures long life. Well balanced for easy handling. Operators like them — and get more done.

Tractair is a combination 35-hp tractor and 105-cfm compressor that takes air power anywhere. Here, it operates a Mobildrill attachment, a lightweight Le Roi-CLEVELAND wagon-drill unit. With other attachments, Tractair can also be used for breaking, tamping, digging, lifting, backfilling, snow-plowing, etc. You save the extra cost of expensive, specialized equipment.

Le Roi-CLEVELAND DR30 Wagon Drill puts deep holes down faster, with less air, than any other wagon drill available. Uses 4" bore Le Roi-CLEVELAND Drifter. Has strong rotation, powerful hole-cleaning ability, and high drilling speed with big bits. For shallow holes, the lightweight Le Roi-CLEVELAND DR34 is available.

To get air power at its best

and air tools with a wallop

. . . team up LeRoi Airmaster Compressors and LeRoi-CLEVELAND Air Tools

Speed your work! Keep costs down!

YOU can't beat Le Roi Airmasters, when it comes to producing *air at low cost!* And you can't beat Le Roi-CLEVELAND Air Tools, when it comes to knocking out *extra footage!* Together, they're a thrifty team that stays on the job, hard at work, day in and day out—costs you less to own —increases your production per man-hour.

When it comes to selecting an Airmaster, you can match your job requirements exactly with the size that lets you do the most work at the least cost. That's because Le Roi's expanded Airmaster line gives you the industry's widest range of portable compressors to choose from.

Every model, every size provides these well-known Airmaster advantages: Full-pressure system that delivers *all* the air you call for, *when* you call for it. Conservative rating that provides ample power reserve — for lower fuel consumption, less maintenance, lower operating costs. Magneto ignition that gives you quick, easy starting — saves time — lets you get going faster.

You make the most of Airmaster performance, when you use Le Roi-CLEVELAND Air Tools. Their exclusive valve action assures low air consumption, high air pressure at the tools. They really stand up, too — break more pavement, dig more clay, drill more rock, tamp more fill.

Put this combination to work on your next project — and hold costs down. See your Le Roi distributor. Write for latest bulletins.

Le Roi-CLEVELAND Sinkers are available in sizes from 18 to 80 lbs., with performance advantages you want. They use less air. They're easy to handle — operators don't tire as easily. And Le Roi-CLEVELAND Sinkers have what it takes to drill more feet per shift: Strong rotation. Powerful blow. High drilling speed.

Compressors
Rock Drills
Tractair
Engines . . .

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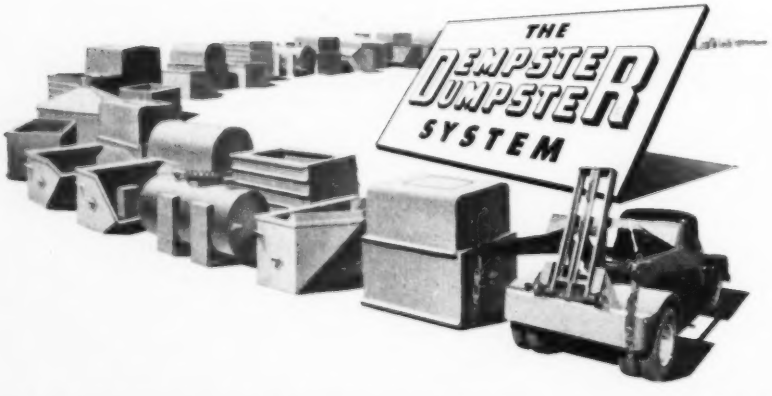
Here's a One-Man Trash and Rubbish Collection System for your City

In the Dempster-Dumpster System of trash and rubbish collection only one man, the driver of the truck-mounted Dempster-Dumpster, is required for operation. The Dempster-Dumpster serves scores of detachable Dempster-Dumpster Containers located at such places as schools, hospitals, market and housing areas, hotels, grocery stores, department stores, restaurants, etc. Each container is loaded by the user. By prearranged schedule, the Dempster-Dumpster picks up, hauls to disposal area and empties each container—one after another. Entire operation is handled by hydraulic controls in truck cab, as shown above.

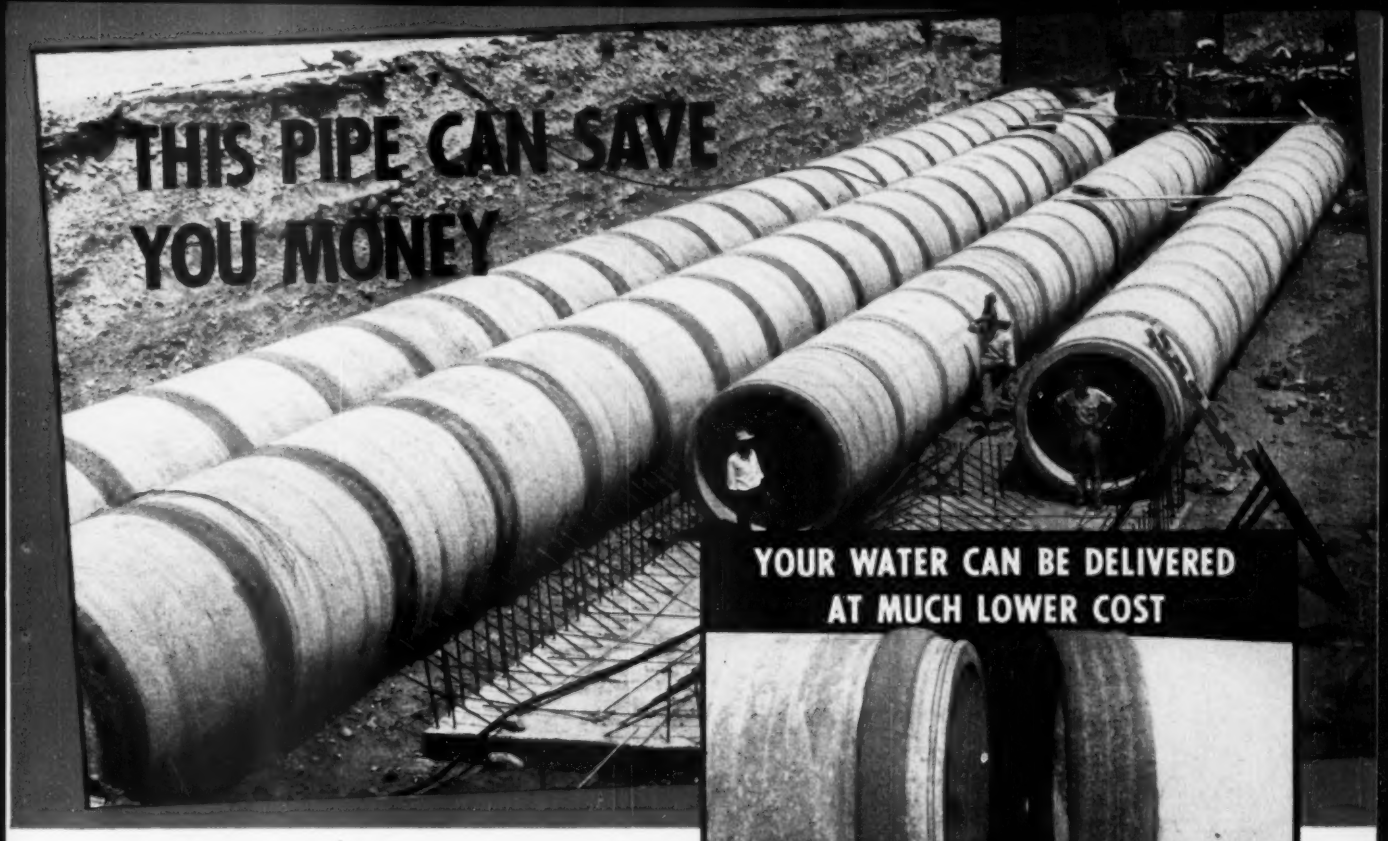
Container capacities range up to 4 times that of conventional dump truck bodies and each container built for trash and rubbish is completely closed—eliminating the health menace of disease carriers such as rats feeding on open and scattered refuse due to unsanitary and inadequate trash cans, barrels, crates, etc.

Without question, the Dempster-Dumpster System is the most sanitary and lowest cost method of bulk rubbish collection ever devised. Write to us for complete information. Manufactured exclusively by Dempster Brothers, Inc.

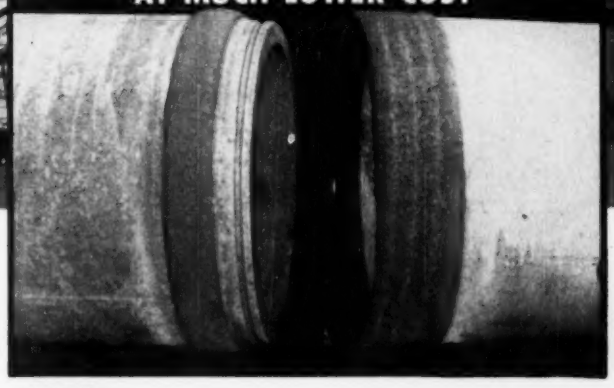


One Truck-Mounted Dempster-Dumpster Handles Scores of Containers . . . All Designs . . . All Sizes

DEMPSTER BROTHERS, 8123 Dempster Bldg., Knoxville 17, Tennessee

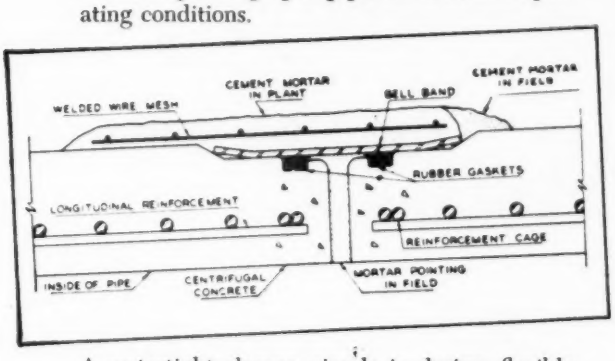


YOUR WATER CAN BE DELIVERED AT MUCH LOWER COST



HOW...

By Specifying Centrifugally Spun Reinforced Concrete Pressure Pipe, with The Double Rubber Gasket Joint, for moderate operating heads. Maximum operating heads range from 100 ft. to 150 ft. depending upon pipe diameter and operating conditions.



A watertight closure, simple in design, flexible and positive in service. Joints may be pulled to allow for minor changes in line or grade. Angle joint bands provided for larger deflections. This joint was developed by American to insure ease and speed of installation.

WHY...

1. **FREEDOM FROM MAINTENANCE.** Costly repairs are almost non-existent in reinforced concrete pipe lines. Concrete *improves* with age.
2. **SUSTAINED MAXIMUM CARRYING CAPACITY.** Concrete pipe carries more water, size for size, because of smooth interior walls and more favorable flow characteristics. A long-term saving here.
3. **EASE OF INSTALLATION.** This pipe can be laid in one compact operation. Trenching, laying and backfilling are done simultaneously. No bell-holes to be dug, no welding or caulking. Real savings here.
4. **PERMANENCE.** Reinforced Concrete Pipe is long-lived. The steel reinforcement is completely protected from corrosive action by a compacted concrete encasement.
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American manufactures four classes of reinforced concrete pressure pipe in diameters ranging from 12 inches to 12 feet, and for all pressures related to modern American water works practice.

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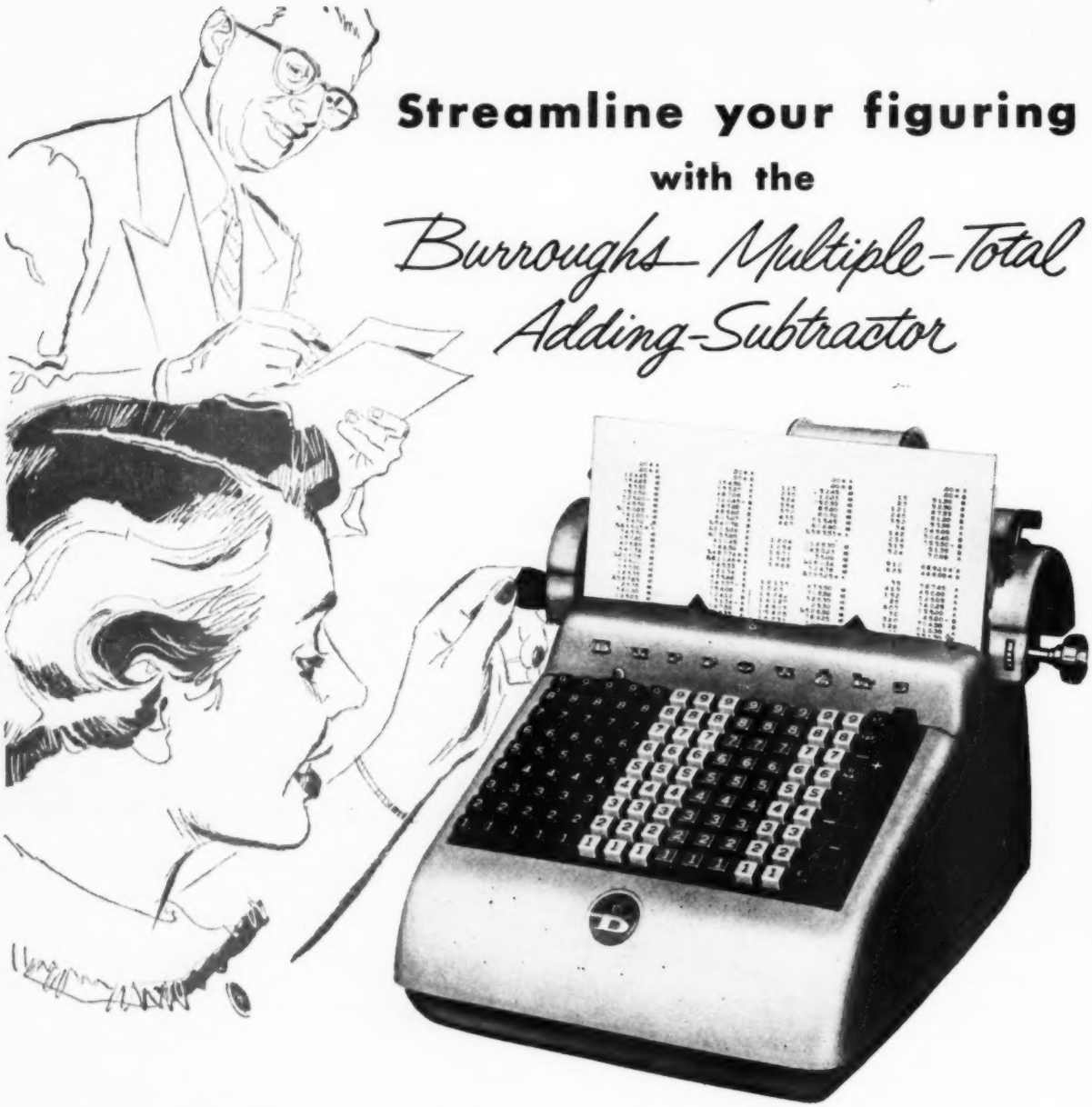

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with the

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To simplify the steadily increasing problem of efficient figure handling, there's no better answer than this new Burroughs Multiple-Total Adding-Subtractor. It has proved in use to be a versatile and agile performer on a great variety of jobs for municipalities, counties, and other governmental bodies.

Here's a flexible unit that features two accumulating registers . . . adds *and subtracts* in either or both . . . accumulates individual group totals and the grand total simultaneously, without recapping.

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Modern in design . . . compact . . . lightweight—this all-new Burroughs can effectively streamline your figuring operations, to save you time and money. And it's available in 10-column and 13-column models, with wide or narrow carriage. Call the Burroughs branch office near you today, or write Burroughs, Detroit 32, Michigan.

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New

DELCO-REMY ALTERNATING CURRENT GENERATOR

(ALTERNATOR)

A.C.-D.C. charging system for vehicles with extra-heavy electrical loads

Here's the answer for "problem" vehicles – Delco-Remy's new long-lived A.C.-D.C. charging system! It's specifically designed to meet the *extra*-heavy electrical demands of public utility trucks, and other vehicles equipped with two-way radio, floodlights or any extra electrical units . . . ample current reserve picks up discharged battery quickly in operation.

With output ranging from 30-40 amperes at engine idle to 90 amperes at higher engine speeds, the new Delco-Remy A.C.-D.C. charging system meets all electrical needs under the toughest operating conditions. Included in the new system is the A.C. generator (alternator), a matching regulator for accurate voltage control and a rugged, dependable dry-plate rectifier which converts generator A.C. output to direct current.

Application packages for popular makes of cars and trucks are now available. The conversion job is simple, complete and profitable. For details and application data, call your United Motors wholesaler.

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DISTRIBUTED BY WHOLESALERS EVERYWHERE

DELCO-REMY

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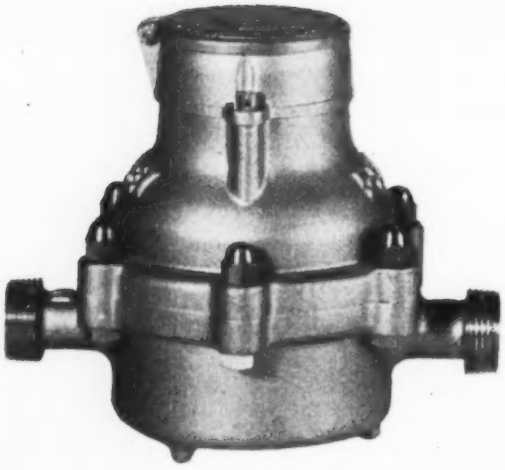
WHEREVER WHEELS TURN OR PROPELLERS SPIN

There are no substitutes for HERSEY WATER METERS



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Disc Water Meter
MODEL HD

Particularly designed for use in areas where non-freezing conditions exist

Hersey
Disc Water Meter
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Particularly designed for use in areas where freezing conditions may be encountered

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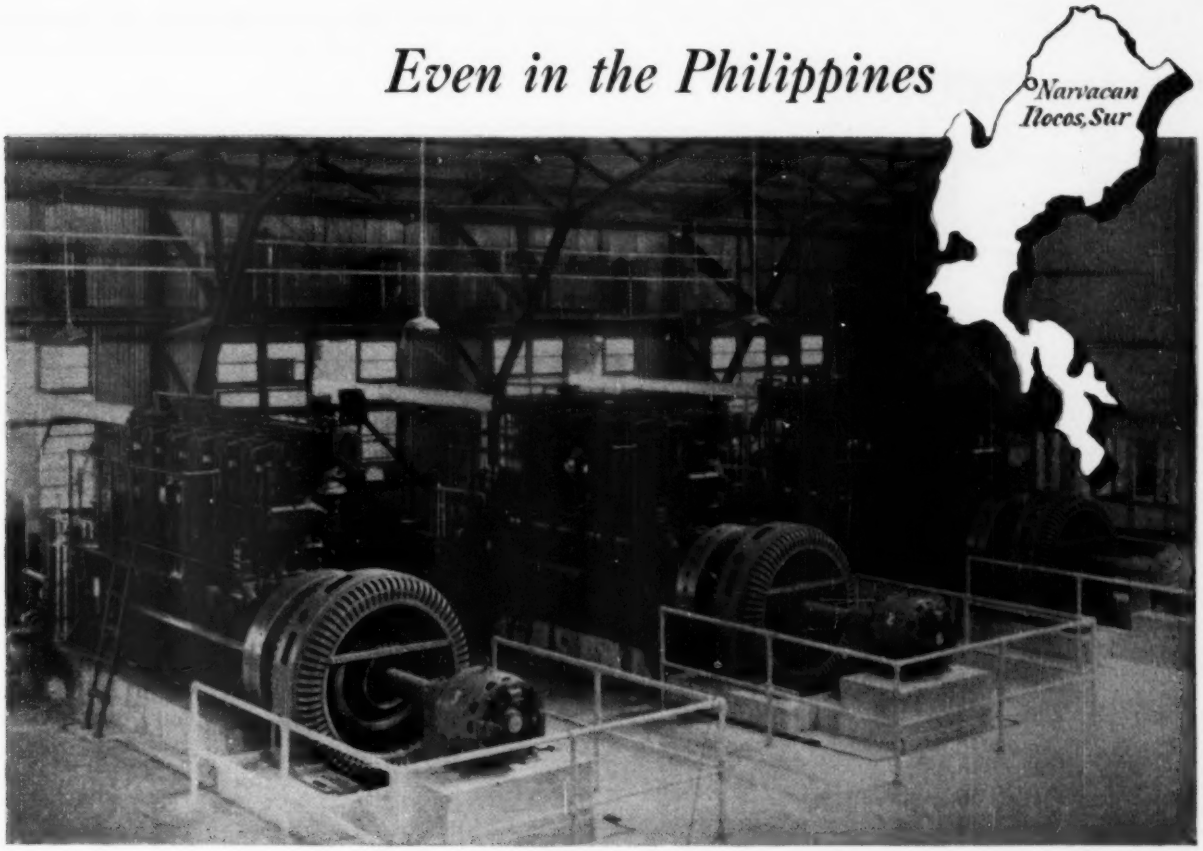

. . . economical **ATLAS DIESELS** for vital power

Much like hundreds of communities in America, a new textile mill swinging into operation at Narvacan, Ilocos, Sur, in the Philippine Republic will rely on modern Atlas Diesels for its all-important power.

Assembled from scrapped Japanese machinery, and modernized with three new Atlas Diesels, rated 350 hp. each, the new mill will produce 4500 to 5500 yards of yarn daily—and is expected to give the Islands' industrial development program a healthy boost.

Geographically speaking—whether it be the tropics of the Philippines, the humid heat of Louisiana, or the "below zero" of wintertime Canada or Alaska—you will find Superior and Atlas Diesels providing economical and dependable municipal power for lighting, sewage plant or water pumping operations everywhere.

Such widespread use and preference stems from Superior and Atlas Diesel engines' simple design, quality craftsmanship in manufacture, and peak performance under load. If you are considering diesel power, be sure to get the complete, "on-the-job" facts and figures for Superior and Atlas engines today—simply write the Engine Division at Springfield.

Superior ENGINES
ATLAS Imperial DIESEL ENGINES
DIESEL • DUAL FUEL • GAS

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Two major forward steps were taken last spring in Pennsylvania's Clean Streams Program. These new Dorr-equipped treatment plants at Bethlehem and Easton went into operation to play an important part in abating pollution of the Lehigh and Delaware Rivers. Biofiltration and Multdigestion were selected as the most efficient combination at both plants. If you don't already have Bulletin No. 6041, Dorr Equipment and Methods for Modern Sewage Treatment, write for a free copy today. The Dorr Company, Stamford, Conn. *In Canada:* 26 St. Clair Avenue East, Toronto 5.

Bethlehem, Pa.

Design capacity is 12.5 MGD using the single-stage Biofiltration flowsheet. Dorr equipment includes two 18′ sq. Detritors, four 135′ dia. S-7 Clarifiers, four 120′ Distributors and two 65′ dia. Multdigestion Systems.

Consulting Engineers: Morris Knowles, Inc., Pittsburgh, Pa.

Easton, Pa.

Design capacity is 5.0 MGD and either single or two-stage Biofiltration can be used. Dorr equipment includes one 18′ sq. Detritor, four 100′ dia. S-7 Clarifiers, two 160′ Distributors and a 65′ dia. Multdigestion System.

Co-*Consultants:* Glace & Glace, Harrisburg, Pa. and Whitman, Requardt & Associates, Baltimore, Md.

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MADE TO MEASURE...

FROM TRICKLES TO TORRENTS

Office buildings, hotels, apartments and industrial plants are "naturals" for this Rockwell single register compound meter that measures both trickles and torrents with precision accuracy. Install them with confidence—reap *all* the revenue that you should obtain. Write for bulletin W-803.

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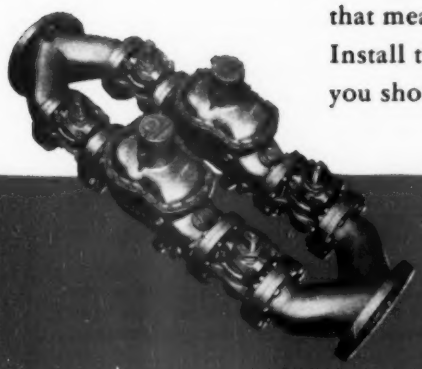

WHERE TWO ARE BETTER THAN ONE

This manifold assembly of two 4 in. Rockwell compounds assembled with Nordstrom valves is easier to handle—weighs 100 lbs. less than a single 8 in. meter. Maintenance is simplified since one side can be shut down without service interruption. The initial cost for most installations is less. Write for details.

ROCKWELL MANUFACTURING COMPANY

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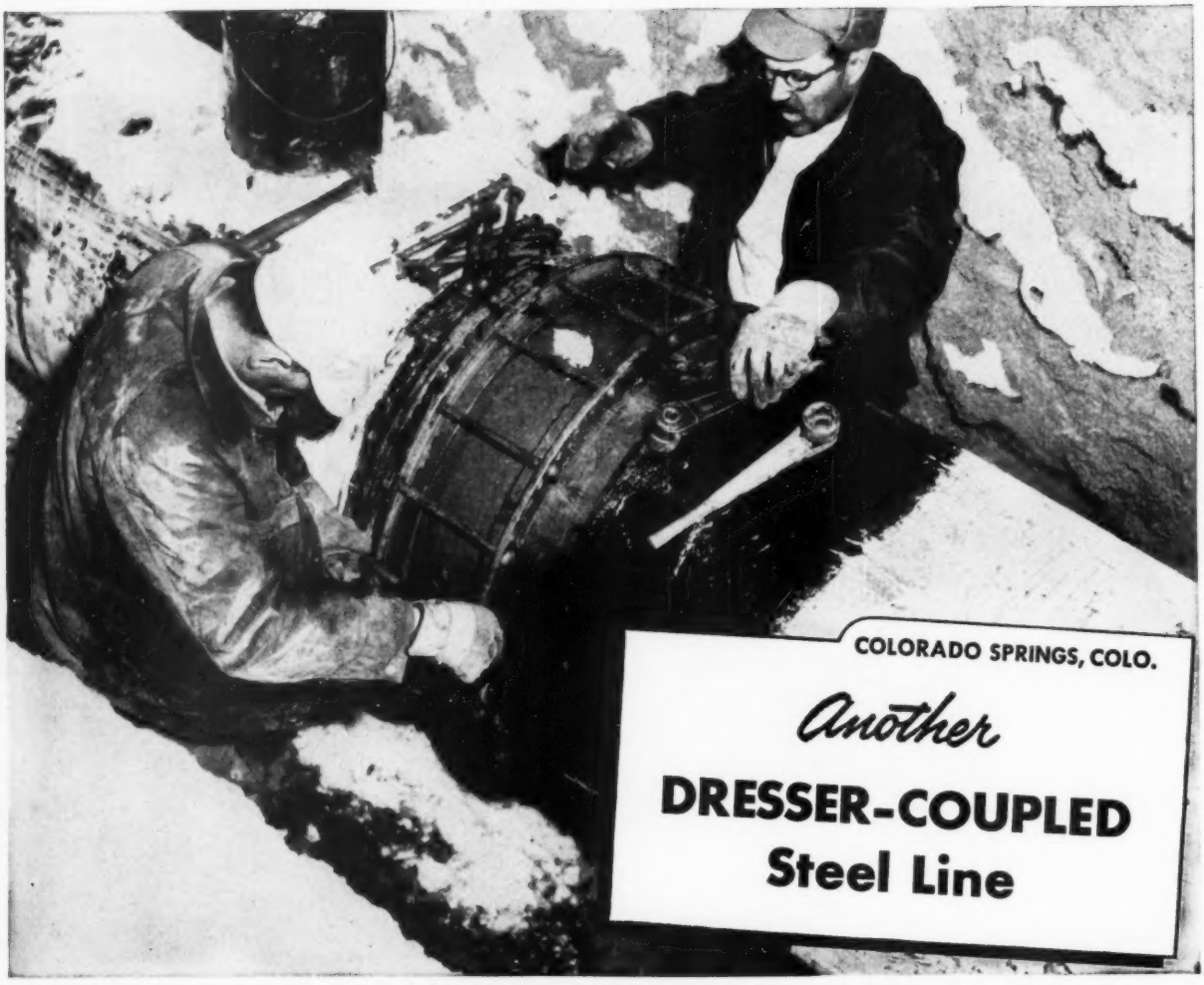


DELIVERS WATER CHEAPER!

Colorado Springs installs high-pressure, 30-inch line in rugged mountain terrain with minimum of heavy equipment.

High-pressure steel pipe—50,000-lb. yield—was used in this line carrying water from the South Platte River to Catamount Reservoir near Divide, Colorado.

Portions of this force main were designed to operate at pressures up to 800-lb. psi. A Dresser-Coupled steel line offered engineers positive assurance of permanently tight joints.

Fast construction schedules were made and *kept* because Dresser Couplings went together quickly and easily regardless of weather or trench conditions. Laying costs were reduced by the ability of small crews to handle and join lighter weight steel pipe with a minimum of skill and heavy equipment. The absence of heat in joining prevents damage to the coal tar enamel pipe coating and lining. Glass-smooth linings assure sustained high flow-coefficients.

The result—another line that delivers, and will keep delivering water cheaper.

✓ ***BE SURE*** **you get the *best* line at the *best* price. Always put steel pipe and Dresser Couplings in *your* specifications.**

DRESSER COUPLINGS

Dresser Manufacturing Division, 69 Fisher Ave., Bradford, Pa. (One of the Dresser Industries). Warehouses: 1121 Rothwell St., Houston, Texas; 101 S. Bayshore Highway, South San Francisco, California. Sales Offices: New York, Philadelphia, Chicago, Houston, South San Francisco. In Canada: Toronto, Ont.

SCENE: *Model 10* AUTOMATIC SIGNAL IN ACTION

Unseen—by the impatient motorist—is an on-rushing second train, concealed by the first. But there's no danger here of a dreaded "second train accident." Model 10's flashing lights will *continue* to operate, and the barrier arm will *remain* down until both trains have cleared the crossing.

Unseen—something that can't be illustrated: Model 10 *dependability*. Model 10's operate unfailingly, even when temperatures are extremely high or low . . . and regardless of snow or sleet. Moreover, Model 10's are on the job 24 hours a day—never go "off duty."

Unseen—the safety record established by Model 10's: Since 1936, thousands of them have been placed in operation at busy crossings, and *not a single accident has ever occurred as a result of operation failure on the part of these signals.*

Unseen—the considerable dollar-and-cents economies effected by Model 10 protection. The low cost of Model 10 installation, operation, and maintenance is written in the records of a hundred railroads.

There's much more to tell about Model 10 safety and economy. Write for 748-AC-1253

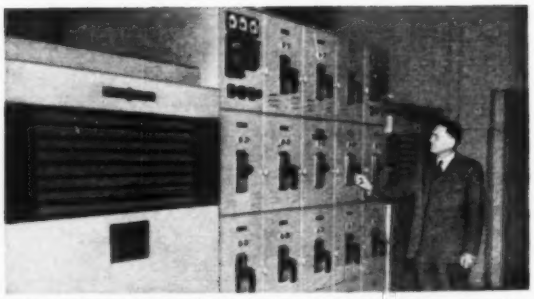
WESTERN RAILROAD SUPPLY COMPANY

General Offices and Factory:
2428 SOUTH ASHLAND AVENUE • CHICAGO 8, ILLINOIS

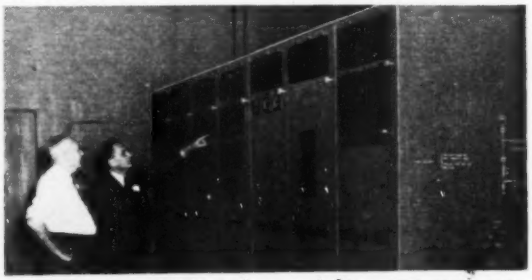
INCREASED WATER-PUMPING CAPACITY was recently provided at this fifty-year-old Bryant St. pumping station in Washington, D.C., with the help of G-E equipment. Station receives water at low pressure and elevates it to four distribution services. Main centrifugal pumps at right act as boosters in this operation. Operators' control room is shown behind pumps.

District of Columbia

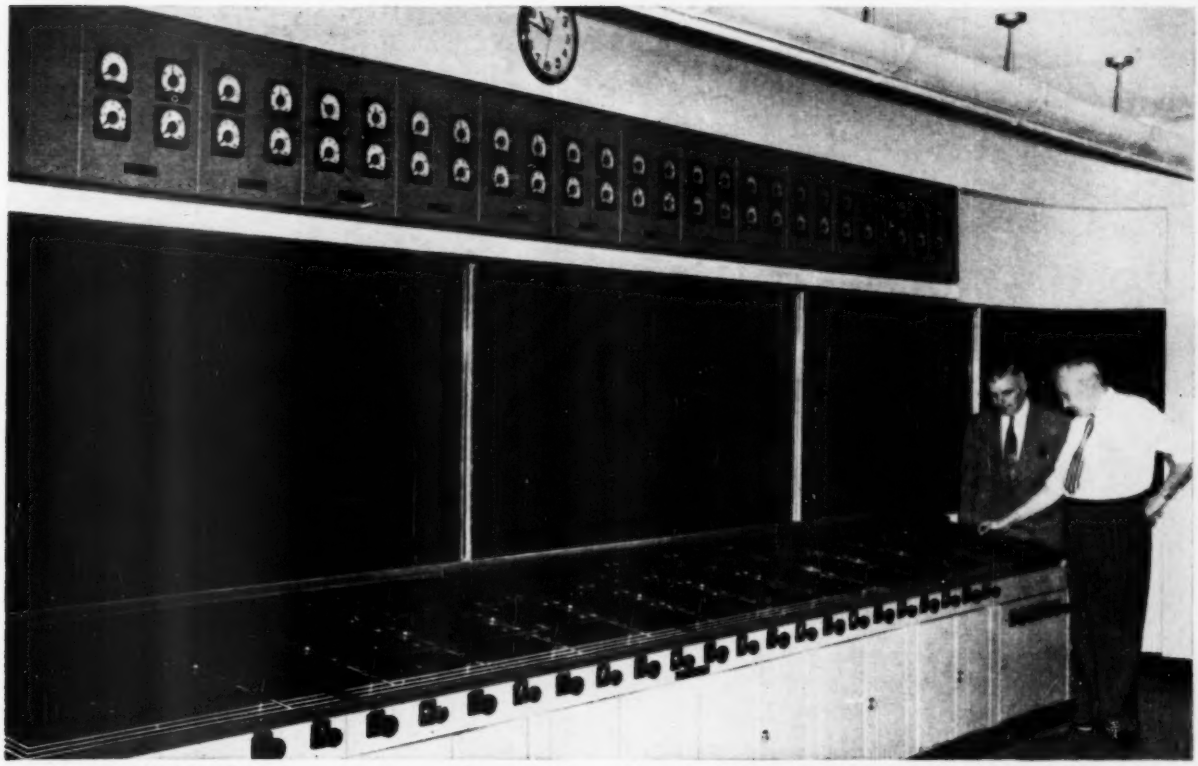
RELIABLE OUTDOOR UNIT SUBSTATION steps down voltage for plant use to 2400 volts. G-E application engineers on this job worked closely with the consulting engineers, and with the Central Armature Works, electrical contractors.



SIMPLE OPERATION of this indoor unit substation can be provided by one man. Shown here are two G-E transformers supplying power for switchboard.



COMPLETE PROTECTION and control for pump motors is provided by this 2400-volt G-E metal-clad switchgear. In addition, these compact units provide circuit protection.



CENTRALIZED CONTROL of all plant operations can be provided by one man from this master control desk. Versatile SB-1 switches on panel are used to control pump motors and valves.

Easy-to-read switchboard instruments above window indicate station electrical values. The entire twenty-two foot long desk is housed in a single enclosure.

expands water system

New G-E equipment at Bryant St. Station helps to *more than double* pumping capacity

In order to handle rapidly growing water requirements in the District of Columbia, a new modernization and expansion program was recently placed in operation at the Bryant St. Station. As a result, the station's water-pumping capacity has been boosted from 145 mgd to 310 mgd, providing increased capacity for Washington's growing needs.

Instrumental in the success of this expansion program was General Electric equipment and engineering assistance. To help provide a co-ordinated electrical system designed for this particular installation at minimum cost, G-E application engineers worked in close co-operation with the city's consultants.

This same kind of help can pay off for *your* community's water supply program, too. G-E application engineers are ready to work closely with you and your consultants to fit the right electrical equipment into a system tailored to your particular needs. Call in your G-E apparatus sales engineer *early in your planning stages,* where he can help you the most.

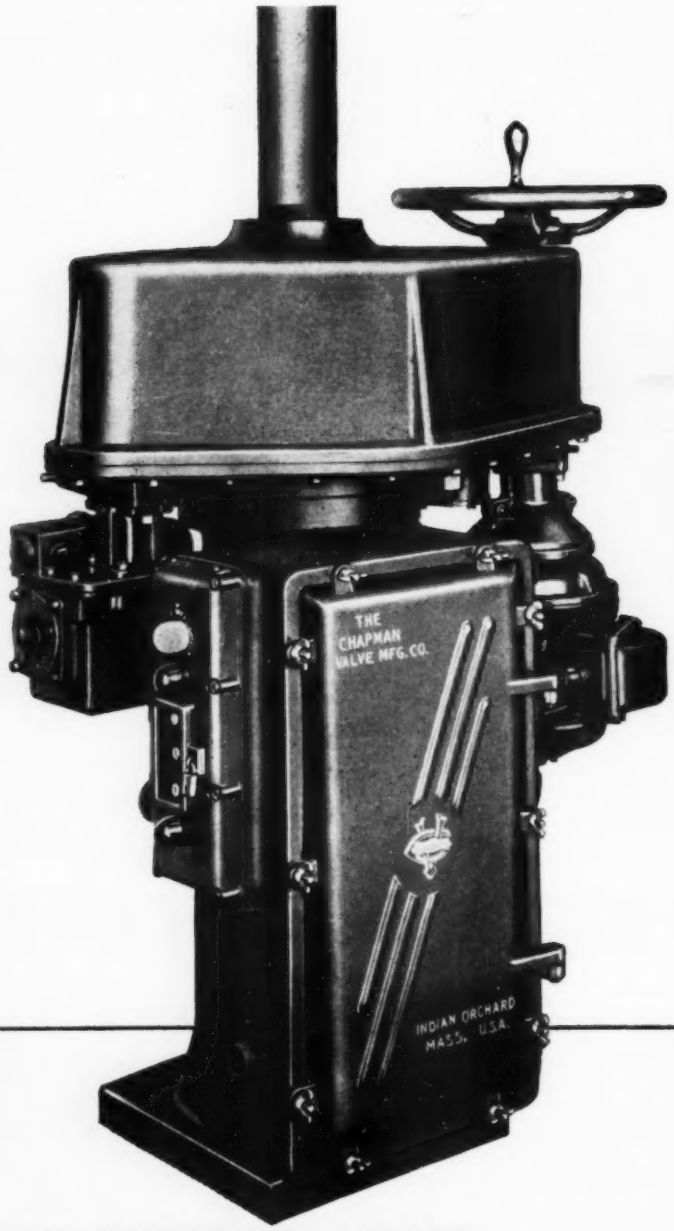
SHOW YOUR COMMUNITY THE IMPORTANCE OF ABUNDANT WATER

Stimulate interest for a water supply program by showing the new color movie "Pipeline to the Clouds." It's part of G.E.'s *More Power to America* Water Supply Program. For full information contact your local G-E Apparatus Sales Office or write on your letterhead for Bulletin GEA-5555 to General Electric Co., Apparatus Sales Div., Sect., 666-80, Schenectady, N. Y.

Engineered Electrical Systems for Waterworks

GENERAL ELECTRIC

SMART OPERATOR for Valves, Gates and Floorstands



CHAPMAN'S MOTOR UNIT

Instant control of valves and large sluice gates at the touch of a button . . . that's what you get with Chapman Motor Units on the job. Completely housed and thoroughly dust and weather proof, these units are built "to take it" for years, on the roughest service. They're designed for simplicity and extreme ruggedness, as shown by internal view above.

Chapman Motor Operated Floorstands are delivered to the job with all internal wiring complete, so all the wiring to be done is to bring the power leads into the connection box... saving time and money in installation and assuring proper operation. Write for Catalog No. 50.

The Chapman Valve Manufacturing Co.
INDIAN ORCHARD, MASSACHUSETTS

faster work cycle...
higher output...
lower maintenance

these are advantages you get with

TORQUE CONVERTER LOADING

brought to you by the

TL-10 TRACTO LOADER

SINGLE LEVER CONTROL speeds work cycle and output. No gear shifting on most loading jobs. Two multiple disc clutches are built right into the transmission. One is for forward, the other for reverse. Both are operated by simply pushing or pulling a single lever. Reverse is almost twice as fast as forward.

NO RAMMING, NO BUTTING, NO ENGINE STALLING when you get your load with the TL-10 Tracto-Loader. You crowd steadily into the pile, using only the foot throttle and bucket control levers — wheel spinning is practically eliminated. That's because the torque converter drive is constantly and automatically adjusting forward speed against loading resistance. This means faster loading, less strain on equipment and greatly reduced tire wear.

What's more, bucket action is always snappy and powerful, because speed of engine and hydraulic pump is never dragged down — even when forward motion is stopped.

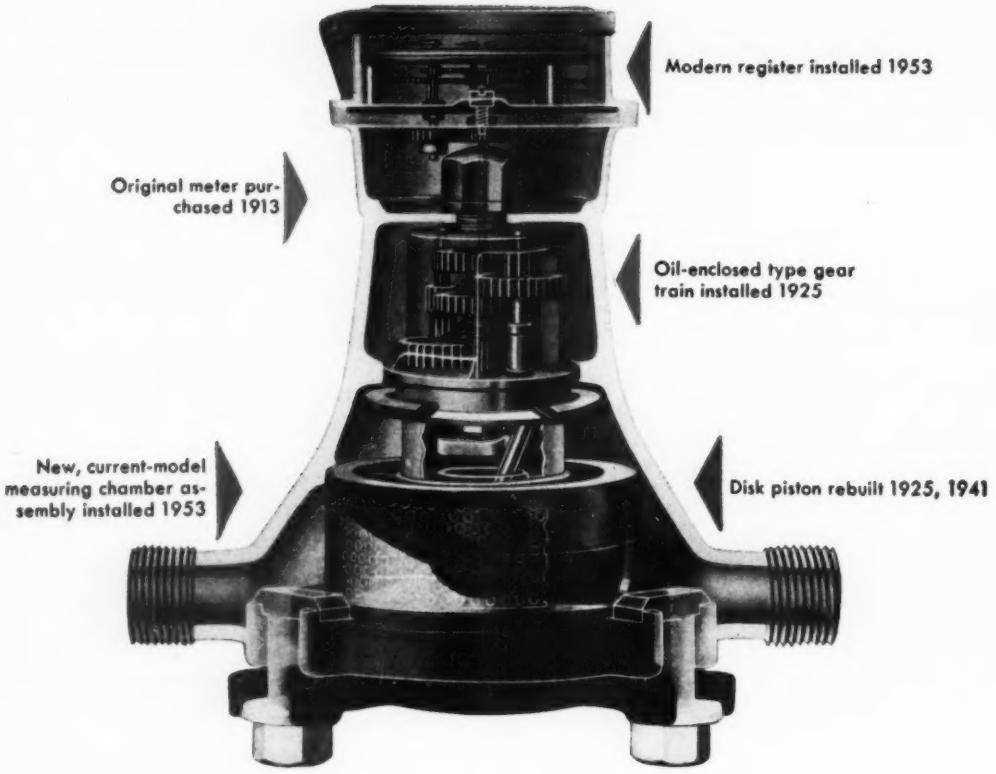
Ask your Allis-Chalmers industrial tractor dealer to tell you of the many additional Tracto-Loader features. Better yet, let him give you a practical demonstration. When you see the advantages of torque converter loading on your job, you'll know what we mean when we say:

Never-Anywhere-
A WHEEL LOADER LIKE THIS!

HIGHLY MANEUVERABLE Bucket over drive wheels utilizes weight of load for greater traction . . . eases weight on rear steering wheels for fast maneuvering. Turning radius is only 11 ft. at tip of bucket . . . works where smaller machines are normally used.

TL-10 TRACTO-LOADER
46 brake hp. — weight 11,400 lb.
Four speeds forward and reverse
See your nearest Allis-Chalmers Industrial Tractor Dealer.

TRACTOMOTIVE
TRACTOMOTIVE CORPORATION, DEERFIELD, ILLINOIS


Modern register installed 1953
Original meter purchased 1913
Oil-enclosed type gear train installed 1925
New, current-model measuring chamber assembly installed 1953
Disk piston rebuilt 1925, 1941

HOW *OLD* IS THIS METER?

It was built in 1913 . . . but it's almost as new as today.

Its working parts have been completely replaced. Its performance matches every standard of modern metering practice.

The parts used to repair this meter at its last overhaul are identical to those used in the latest Trident meters.

Making modern parts fit "old" meters has been a fixed Neptune policy for over 50 years. It is just one of the extra advantages that make Tridents a better buy . . . both for today and for the years to come.

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251

DECEMBER 1953 The American City

High-Rate Low-Cost Sewage-Treatment Plant

By ARCHIE FRENCH
City Engineer
Pendleton, Ore.

UNDER TODAY'S price conditions, a service charge of no more than $1 per month per family for sewage sanitation service is definitely a bargain. This is particularly true when the charges are paying for a new plant that provides what is commonly known as "complete treatment."

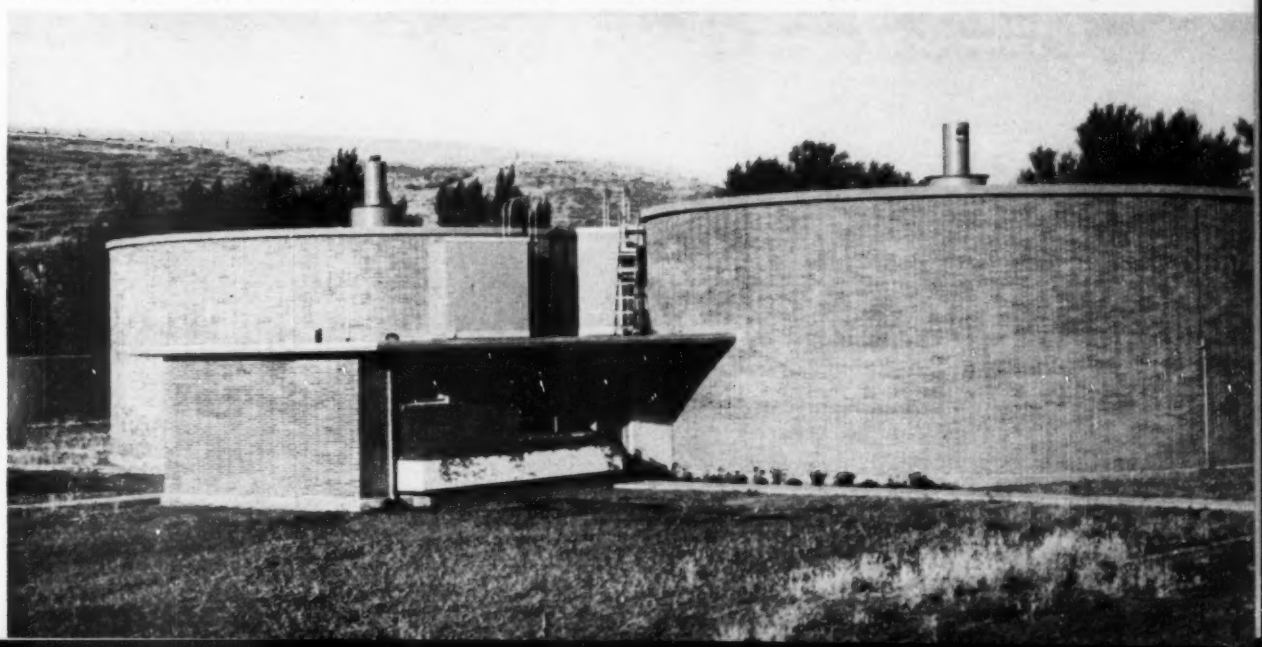
In June of this year, Pendleton, a city of 12,000 in northeastern Oregon, completed the construction of a new plant that provides this sort of treatment and meets these cost figures. The plan supplies primary settling and trickling-filter purification of the settled effluent. The total cost of construction, including an outfall sewer, was $550,000.

The state participated in the financing by paying 10% of the total cost, since the plant receives and treats sewage from the state hospital. The remaining $499,500 for plant construction was financed by the city from sewer-service charges. Charges are $1 per month per residence, plus an industrial-service charge based on the strength and quantity of the industrial waste. In order to compute this charge, which is the actual cost of providing treatment for each industry's waste, the following formula was proposed by the designing engineer and adopted by the City Council:

$$N = \left[\frac{1 + 2(BOD(i) - BOD(av)}{3\,BOD(av)} + \frac{SS(i) - SS(av)}{SS(av)}\right] Q$$

N = Gallons of sewage per day corrected for quality
BOD (i) = 5-day BOD of industrial waste in question, expressed as parts per million
BOD (av) = 5-day average BOD, received at the main plant, in parts per million

The laboratory building is conveniently located between the two 45-foot digesters, which supply two-stage sludge to the plant.



Continual laboratory checks and analyses keep operation of the plant at top level.

SS (i) = Suspended solids of industrial waste in question, expressed as parts per million

SS (av) = Average of suspended solids of sewage, as received at the main plant, expressed in parts per million

Q = Quantity of industrial waste in question.

After making these corrections for strength of the sewage, the charge is determined as follows:

First 10,000 gals. . . . . $.25 per 1,000 gals.
Next 40,000 gals. . . . . .10 per 1,000 gals.
All over 50,000 gals. . . . . .05 per 1,000 gals.
Minimum charge . . . . . 1.00 per month

To design the plant, the city called on the services of Cornell, Howland, Hayes & Merryfield, consulting engineers of Corvallis, Ore. The plant that they designed provides primary and secondary treatment, with chlorination added during the irrigation season. It required about 2 miles of reinforced-concrete sewer pipe, 30 and 36 inches in diameter, and included two inverted-siphon river crossings, to bring the sewage to the plant. The plant was designed to treat sewage contributed from a population of 20,000, plus industrial wastes. The design was based on sewage having the following characteristics:

	BOD (ppm)	*Suspended Solids* (ppm)
Domestic waste	200	200
Industrial waste . . . . . (pea cannery)	500	200

The industrial waste is pretreated in a separate plant before it is discharged into the sewer that leads to the main plant. The raw industrial waste has an average BOD of 1,200 ppm, and a suspended solids content of 220 ppm.

The new plant overcomes stream pollution difficulties that were created by the overloaded condition and inadequate treatment provided by the old plant. The stream that received the treated sewage from the old plant had a low flow of 25 cubic feet per second. With the new construction, the plant outfall has been located at a point where two streams join, and where the minimum flow is 400 cubic feet per second. This location provides the benefits of greater dilution.

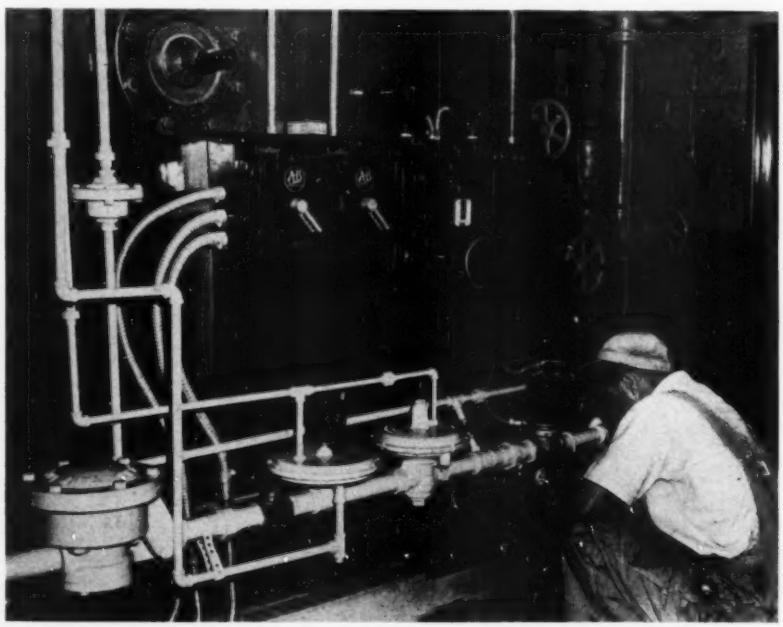
Upon entering the plant, the sewage first passes through a Chicago Pump Company comminutor that macerates the large solids so that they are more easily handled. The sewage then flows through a grit chamber, equipped with Chain Belt grit-removal equipment. A Parshall flume controls the flow into the chamber.

From this point it flows by gravity to the primary clarifiers which are arranged for use either in series or in parallel. Each clarifier is 90 feet in diameter and has a side-water depth of 8½ feet. They are equipped with Dorr sludge collectors and surface-skimming facilities. The basins are designed with these characteristics:

	Flow mgd	*Detention* hrs.	*Gallons per day per* sq. ft.
Minimum flow.	1.20	8.20	190
Average flow (wet season)	3.50	2.80	550
Maximum flow (canning season)	5.80	1.67	910
Maximum flow (noncanning season) .	3.80	2.58	600

The flow through the entire plant

(*Continued on page* 179)



An operator inspects the external heat exchanger.

The old brick street is serviceable, but noisy and bumpy.

Cushion Bricks with Asphalt

By D. C. WESCHE
City Engineer
Manhattan, Kans.

BRICK STREETS have been in use for more than a quarter of a century in downtown Manhattan, a city of 20,000 in northwestern Kansas. Many of these are arterial streets, and the combined effects of traffic, rigorously hot summers and cold winters, have taken their toll of the streets' riding surface.

While the bricks could still carry traffic, the ride was bumpy. Furthermore, dirt worked its way between the bricks, causing the streets to become unusually dusty during dry weather. Noise created by the tires on the bricks added to the nuisance.

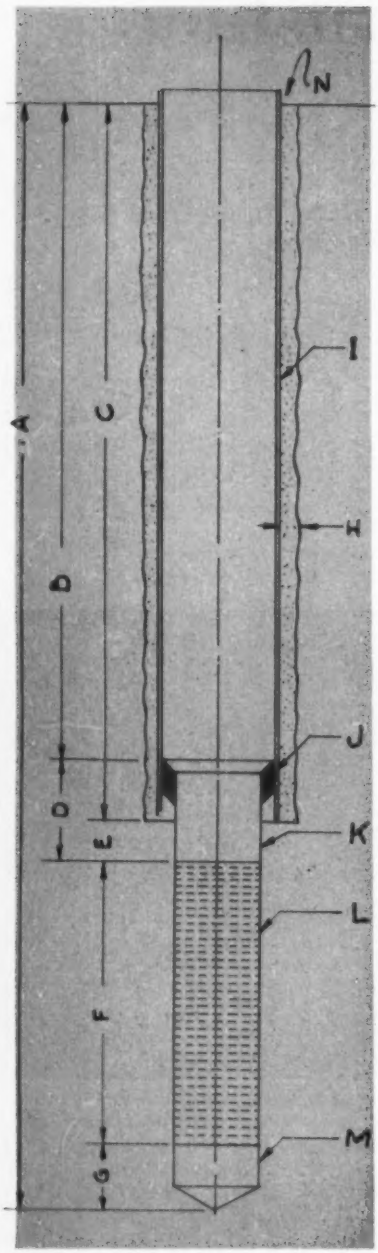
To solve the problem the city, this year, resurfaced the streets with a hot-mixed, two-course asphalt pavement that cushioned the bricks and muffled the noise. The specifications of the State Highway Commission for street asphalt-surface courses were adopted. The contractor chose to use a limestone aggregate, supplemented with fine sand and mineral filler, to meet the gradation requirements.

The bitumen was an AC-5 asphaltic cement; the content allowed for the binder course ranged from 5.5% to 7.5%, and for the surface course, from 6.0% to 9.0%. The average bitumen content used for binder material was 6.5%, and for the surface course, 7.3%.

Other streets in this year's program included those with a 30-year-old asphalt mat surface, badly worn and requiring much maintenance. These streets were stripped of the old surface, and a new surface was laid over the old concrete base.

Asphalt laid by a Barber-Greene paver is compacted by a Galion roller.

The asphalt-cushioned street is a smooth, dustless, noiseless surface.



Well Maintenance

Important factors in keeping down the costs of well operation

By R. M. KING
Chief Engineer
Layne-Arkansas Company
Stuttgart, Ark.

YOU SET THE COST of maintenance the day you decide where you will drill your well. If you select the site on the basis of an intelligent geological study, drill to an adequate diameter with proper equipment, develop the well thoroughly, and select the proper casing, well screen, and pumping equipment, you can expect to eliminate many maintenance costs.

When drilling a well, money spent for adequate geological studies is never wasted. To extract groundwater one should know as much as he can about the ground that holds the water. Preliminary geological investigations, surveys, and test wells always pay off with more dependable wells that produce water of better quality.

Probably the most common reason for excessive maintenance costs is the drilling of a well with a diameter that is too small. The next most costly error is the use of inferior materials to keep the initial cost of construction low. Almost as bad is the topping of a properly constructed well with pumping equipment that is too large and powerful, and which overpumps the well. When this happens, you can expect higher pumping costs, shorter life for the well, and increasingly larger maintenance costs.

The Superintendent's Job

However, once the well has been installed, the water-works superintendent has to keep it operating. Naturally, he guards the well surface so that no foreign material can enter. He keeps his pump, pumphouse, and grounds clean and prop-

A properly constructed well is shown in the sketch above.

A. Total depth should be determined from a test hole.

B. Top of inner casing should be low enough for a permanent pump.

C. Length of well casing should be carefully set and cemented to eliminate caving and seepage.

D. Length of blank or inner casing above screen should give correct lap-up into the outer casing to secure a lead seal or gravel lap that will exclude formation sand from the well.

E. Top of screen should be below the bottom of the outer casing.

F. Length of screen or strainer is determined by the thickness of the proper water-bearing formation.

G. Length of blank and back-pressure valve should be sufficient for guide and plug to secure and center the well screen.

H. Cement wall should be thick enough to protect the casing and fill all space around the casing to insure long life and no caving, and plug off seepage.

I. Well casing should be large and set deep enough for efficient pump equipment, and be securely coupled or welded in place straight enough for satisfactory pump operation.

J. Lead seal or gravel lap will exclude sand and serve its intended purpose.

K. Lap or blank should be the same size as or larger than a screen of adequate material, centrally guided and securely connected together.

L. For long life, well screen should be of proper size, length, and material, and should be properly installed and provided with openings for low inlet velocities.

M. Back-pressure valve, guide, or plug should permit installation of screen and prevent entrance of sand when well is finished.

N. Foundations, floors, drains, etc., should be installed and maintained for sanitary operation of pump equipment.

erly drained. He checks the tightness of pipe fittings. He knows leaks are dangerous and cares for them immediately. Electrical wiring and controls are constantly checked to avoid the consequences of an electrical flaw.

He can avoid trouble by proper operation of his well, also. Frequent startings and stoppings often create surges and disturbances that cause trouble. Wells with automatic controls often suffer from this fault, particularly when the controls are set for close operating tolerances. It is better to widen the gap of pressure or volume control, or to valve down the pump so that it will run for longer periods of time. On the other hand, it is not advisable to let a well remain idle for long periods.

Detecting Trouble

A wise procedure in well maintenance is to check defects before they can create a major problem. Symptoms to look for include:

1. Contamination or pollution
2. Mud or sand in the water
3. Gradual loss of capacity
4. Pumping air, or pressure surging
5. Various pump or electrical troubles

Contamination or pollution is obviously provoked by an outside source. Therefore, be careful to take your sample properly, directly from the well. Then look for surface seepage, openings into the well where bugs, animals, or foreign material can enter. Third, check nearby open holes or wells. Someone may be using an abandoned well as a sewer.

Leaks

Muddy water or sand indicates a leak or opening in the well. By stopping the pump for a while, determining water level, the size of the well, and capacity of the pump, you can calculate the time required for the mud or sand to appear. This allows you to fix the approximate depth of the trouble spot. In the case of mud, color may be the clue. The amount of mud or sand, the length of time it takes to clear, and other observations, are valuable in solving the trouble and planning corrective measures.

When the capacity of a well falls off, it seldom happens without advance warnings. A well may collapse or suddenly heave full of sand and shale, but then, too, it will give forewarnings. Many operators mistakenly neglect to take heed of gradual, minor changes in the functioning of a well. If they do observe these changes, they sometimes are unable to evaluate their observations on a comparative basis. Many wells have been damaged beyond practical repair, because they were pumped for too long after trouble was first detected.

Reduced Capacity

Gradual reduction in well capacity is caused frequently by screen difficulties. Well screens may become clogged with mineral deposits, they may corrode, or be put out of service by other causes. Corrective measures may require acidization, agitation with surging equipment, swabbing, or a combination of these operations.

Capacity may be reduced by clogged strainers. Or, it may be that other wells have been drilled at too-frequent intervals and have lowered the water level. The pump may be worn, or have developed a hole in the column. Records show that other causes include leaking or broken discharge pipes, or incorrect pressure gauges, meters, and measuring devices.

If sand is being pumped, the repair crew must determine whether the sand is coming from the bottom of the well, through the screen—and at what depth, from the seal or lap, or from the well casing. Mud may come from the well bottom when this area is in clay or gumbo. Otherwise, it must come from a leaky casing.

Because of the currently inflated costs of construction, it is essential that a water works be operated on a sound, safe, and economical basis. Deep-water wells fulfill these requirements and permit low-cost water to enter your system, but you must provide only the best in water-well construction, repair, and maintenance.

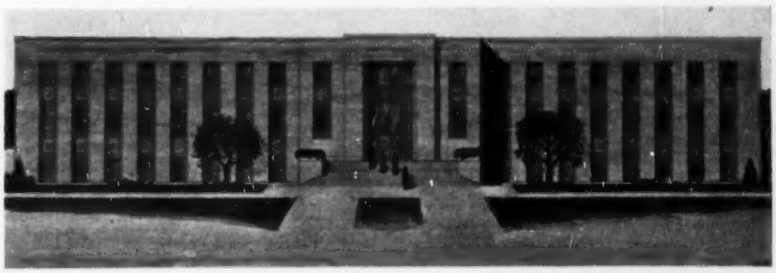
City Hall Built Without Bond Issue

W. K. WILLMAN, City Manager of Pontiac, Mich., reports that construction is under way on a city hall building for Pontiac, to cost approximately $1,100,000, and to be occupied early in 1955. The building is being constructed without a bond issue through an arrangement decided upon by the City Commission in 1950, for the establishment of a city hall building fund.

A stipulated sum of money was transferred from the annual allocation of capital improvement to this fund and set up in a separate bank account for that purpose only. By 1953 there were sufficient funds on hand to let the contract. The difference between the contract price and the amount of cash on hand has been set up in reserve by Commission action from the city's surplus fund, and during the period of construction, the usual annual allocation for this purpose will be continued.

Pontiac also carries on a large-scale program of public improvements involving street construction, sewer construction, and water-main construction without the issuance of special-assessment bonds. The city has adopted a formula which establishes a definite price to the property owners for the improvement. This is collected under special-assessment procedures, usually in less than four years, and the collection goes back into a revolving fund dedicated to the construction of public improvements.

The rest of the cost is made up of funds allocated from tax collection as capital-improvement levies, and funds returned to the city from the state gasoline-tax collection. This fund revolves quickly, and has permitted the city to carry on an expanded program of construction without the issuance of special-assessment bonds.

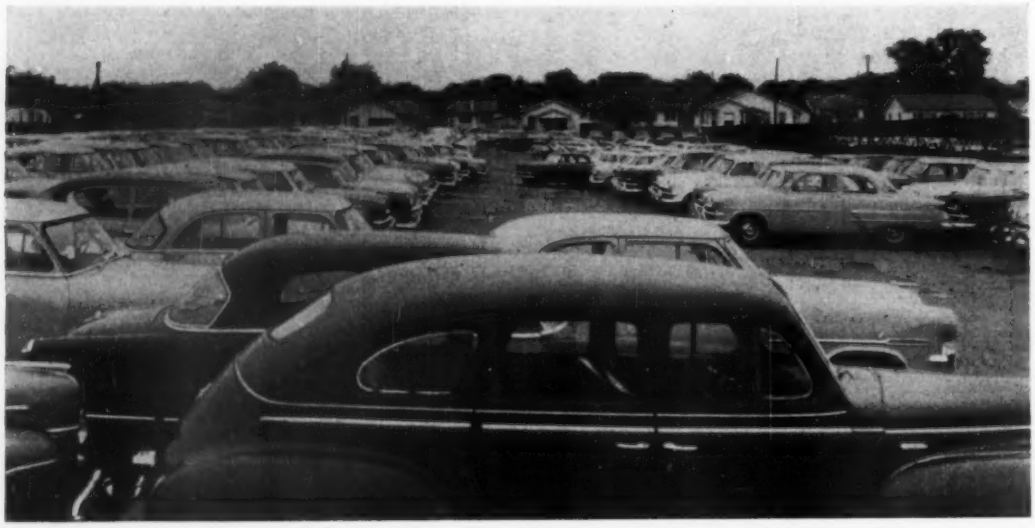


Architect's sketch of the city hall now under construction at Pontiac, Mich.

THE AMERICAN CITY announces a special series of articles dealing with particular phases of sanitary-fill operation. The articles will be based on a survey of all sanitary fills, currently in use throughout the nation, that have been identified as such by responsiible health authorities. The story on these pages, dealing with the experience of Dallas and Memphis, is the first of these reports.

At the conclusion of the series, we will publish a breakdown of the survey information that will report where these fills are, who operates them, and the results obtained.

Go Heavy

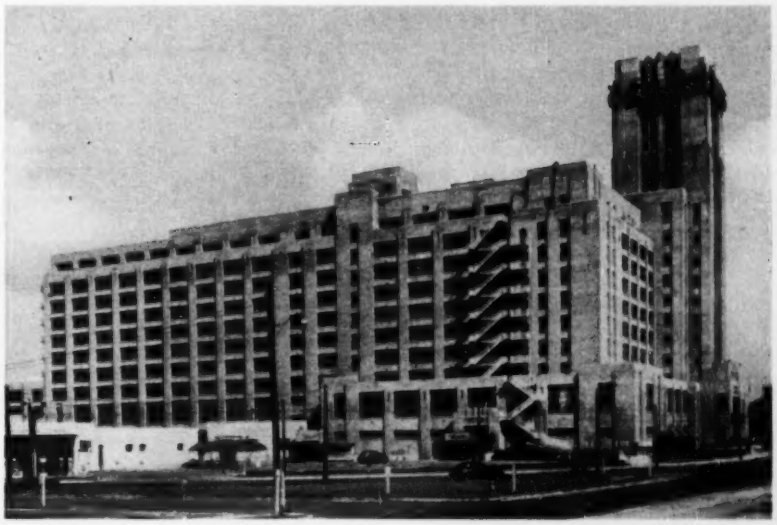


on Compaction

Bigger equipment means better sanitary fills, say Dallas and Memphis

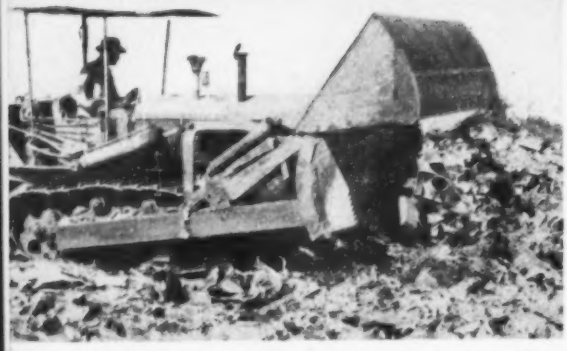
WE OPERATE, in Memphis, seven sanitary fills to dispose of refuse contributed by 450,000 people in an inoffensive, constructive, hygienic manner. These fills have to receive almost 700,000 tons of mixed refuse per year. The area of the fill may vary from 5 to 150 acres, depending upon the site; layers vary from 20 to 90 feet in depth. Every fill is covered with at least 18 inches of earth.

These fills have been in operation for over 15 years and, during this period, we have discovered that the most important factor for building a good fill is compaction. Each day we pack and cover the refuse with heavy equipment. As a result, we are



Heavy compaction enables a city to use completed fills for many purposes. In Dallas, Texas, an abandoned sand pit three miles from the center of town is occupied by a car-transport concern and a low-cost housing development (see facing page) as well as a neighborhood community center and athletic field (below).

In Memphis, Tenn., a TVA substation (below right) and large department store (right) have been built on filled land.



At Dallas, Texas, the operator uses the jaws of the Bullclam to nudge refuse into the sanitary fill.

A Tournapull is assigned to cutting trenches, stockpiling earth, and making the final cover when the fill has reached the desired grade.

able to build on the completed area almost as soon as it is available. If we are careless in compaction, we find that we could not use the area safely even after a wait of 25 years. When the fill is packed thoroughly, settlement is limited to less than 6 inches in 10 years.

As noted, Memphis uses heavy equipment in this work. We like the diesel-powered Caterpillar D-7 and D-8 tractors, equipped with bulldozer blades. To move the earth, we have had good service from the big, rubber-tired Caterpillar DW-10 tractor, towing a No. 10 scraper. This combination not only moves a lot of earth, but does an especially good job of compacting the refuse with its big, pneumatic tires. A crew of 10 men are assigned to operate the equipment.

The compacted fills have been used for many purposes: ball fields, city parks, roadways, and even large business buildings. The Tennessee Valley Authority occupies one completed area for a substation, some are occupied by homes. All this is possible, we are convinced, because we approach the job with big equipment, pack the refuse to a solid, dense mass, and cover it promptly each day.

WILLAM H. HUGO
Superintendent of Sanitation
Memphis, Tenn.

Memphis' big diesel-powered bulldozer maneuvers great loads of refuse into fill.

●

IN DALLAS, we are sure that the quality of a completed fill is in direct ratio to the type of equipment used for compaction: the smaller the tractor, the poorer the sanitary fill, and the harder the work. Our policy has been to retire the small tractors and to replace them with larger and more mobile earth-moving equipment.

We like to build good, solid sanitary fills with shallow layers of refuse—rarely more than 4 feet deep—that are relatively easy to compact. The refuse is sealed off each day with about 4 inches of earth and is topped with 18 to 24 inches when we reach the desired grade.

Generally, we get more than 10% settlement and are able to use the completed fills for parks, playgrounds, housing developments and commercial projects, or for conversion to agricultural purposes. Inasmuch as the fill areas are unproductive and useless, we believe that this work is a clear gain for the City of Dallas.

We operate five fills simultaneously. We adapt the method of building the fill to our needs, using the trench, area, or ramp method. The areas that the individual fills embrace vary from 4 to 20 acres.

The equipment assigned to the work includes 10 International and Allis-Chalmers crawler tractors, equipped with Drott Bullclams. In addition, we are using very successfully a LeTourneau Tournapull with an 8-yard scraper, and we are planning to purchase a second such unit shortly.

Refuse is contributed by 500,000 persons. The fills receive 250,000 tons of city refuse and 100,000 tons of commercial refuse annually.

G. C. BRINKLEY
Superintendent of Sanitation
Dallas, Texas

A heavy-duty tractor is used to pack the refuse solidly and cover it over with a thick layer of earth.

A Caterpillar DW-10 pneumatic-tired tractor-and-scraper combination moves the earth and compacts it heavily. Memphis has a crew of ten.

An aerial view of the power and water plants; (left) the new Walker Process Clariflow unit, a water improvement of Orlando's five-year expansion program.

Revenue and Results

Orlando's five-year plan to keep water and power plants in step with the city's growth

REVENUE AND RESULTS, words that begin with the same letter, end with the same meaning in Orlando, Fla., where revenue from the municipally owned power and water plants are converted to results in the frame of expanded facilities.

At the present time, the Utilities Commission is only two years away from completion of its newest $6,000,000 improvement project. This is a five-year program that will bring the power and water plants to capacities capable of serving an increased population. Instead of lagging behind, Orlando's facilities will actually be out ahead for a few years.

The current program, scheduled over a five-year period, was launched in 1951 to keep pace with the greater-than-anticipated growth of the city, including reactivation of its military air base.

Expansion of the water works, the most sorely needed of the projects making up the over-all program, began in 1951. That year, the Commission paid out $158,000 for the beginning of a job which, by the end of 1952, had progressed to the point where 1,375 feet of 36-inch, 2,346 feet of 30-inch, and 6,084 feet of 20-inch mains had been laid.

The pipe-laying project included replacement of the 20-inch mains with 36-inch Universal cast-iron, cement-lined pipe in the arterial loop lines serving the system. The replaced pipe was moved further out

into the extremities of the system and many hundreds of feet of entirely new lines were also laid.

An integral part of the water program included erection of a 500,000-gallon storage tank, bringing to four the number of elevated tanks in the city's system. This phase cost $287,000.

All the improvements in the distribution system were made in accordance with a survey made by Robert & Company Associates, consulting engineers of Atlanta.

During 1952, the Commission paid out more than $2,000,000 for expansion of the power plant, including $192,000 for down payment on a 30,000-kw General Electric steam-turbine generator to be installed upon delivery late this year.

Other equipment and extension costs in 1952 included a C. H. Wheeler two-pass, surface condenser costing $150,000; Elliott feedwater, stage heaters costing $27,500; and a 150,000 pound per hour, Babcock & Wilcox boiler which required a down payment of $200,000.

Last year, the Utilities Commission paid out $300,000 for station piping, and $29,000 for a boiler feed pump. Other items, including electric wiring, building extension, electric switchgear, engineering and miscellaneous costs brought the outlay for the power plant to $2,052,600. At the same time, the modernization and expansion of the water-distribution system in 1952 cost $485,000.

Currently, a $375,000 addition to the existing water and power plant buildings is under construction at the east side of the existing plant. The four-story structure will double the building area, bringing the plant to its maximum size. This section will house a Walker Process clarifying unit, with an 8 mgd capacity.

The addition to the power plant, west of the existing structure, will house the new 30,000-kw turbine generator as well as the master boiler. Space is being provided to allow for placement of another unit within the structure when additional power production is dictated by the growth of the city.

Completion in Sight

Expansion of the water works goes over the hump in 1953, according to General Manager C. H. Stanton. Expenditures planned for the current year include $180,000 for improvement of the distribution system, $114,000 for elevated storage facilities, and $200,000 for plant expansion.

Next year and the following year will see the completion of the five-year program. The water plant, including the distribution system, will get $457,000 in 1953 and $719,000 in 1955. At present, the water plant is producing more than 16 mgd. In 1954, the capacity will be raised to 24 mgd.

The power-producing capacity, with addition of the 30,000-kw generator, will be stepped up to 73,000 kw at completion of the program—an adequate supply of electric power to light the city's homes, offices, and run the wheels of its factories, including those new industries which will be attracted to Orlando by these added facilities.

In the 10-year period ending July 1952, the Orlando Utilities Commission showed net earnings of $12,964,000. Of this amount, $5,568,000 was turned back to the city. These funds have been used for bond retirement and other city expenses. Last year's net income was almost $2,000,000.

PCBO Adopts Code Changes

Gilbert E. Morris, new head of the Pacific Coast Building Officials' Conference.

THE PROCESSING of 120 suggested revisions to the Uniform Building Code of the Pacific Coast Building Officials' Conference was the major undertaking at the 31st Annual Business Meeting of this group held at the Hotel Huntington, in Pasadena, Calif., on October 5 to 9. The code is now in use in 675 municipalities, in 39 states, and in the territories of Hawaii and Alaska.

Highlights of the program were a pictorial review of the Los Angeles method of "Upgrading a City" through elimination of slums, given by Gilbert E. Morris, superintendent of building, at Los Angeles, and discussions on "The Structural Engineer's Viewpoint" and "The Architect's View of the Building Department." Another feature was a demonstration class conducted under the auspices of the University of California as a sample of the professional training courses in Building Department Administration which are currently being offered in Los Angeles.

The Pacific Coast Building Officials' Conference recently opened new headquarters offices at Suite 1120, Walter P. Story Building, 610 South Broadway, Los Angeles 14, Calif. These offices, designed by Hal Colling, managing-secretary of the organization, contain a meeting room, an all-electric production and mailing department, a reception office, and bookkeeping and publication quarters.

Among the new pamphlets available from the Conference without charge are: "Adopting and Maintaining the Uniform Building Code," a manual for cities operating under the code, and "A Manual of Procedures of the Pacific Coast Building Officials' Conference."

Gilbert E. Morris, Superintendent of Building, Los Angeles, was elected president for 1953-1954.

Other officials elected for the coming year are John V. Schwafel, Building Inspector of Palo Alto, Calif., as first vice-president; and C. S. McCormick, Building Superintendent of Tacoma, Wash., as second vice-president.

Members elected to new terms on the Executive Board are Melvin B. Nelson, City Engineer of Richland, Wash.; H. C. Hargreaves, Chief Building Inspector of Salt Lake City, Utah; and Earl E. Malmgreen, Building Inspector of Alhambra, Calif. Mr. Malmgreen was also appointed chairman of the Research Committee, and Marcus S. Carlson, Building Official of Alameda County, Calif., the chairman of the Code Changes Committee. Hal Colling was reappointed as the Conference's managing-secretary.

Next year's meeting is to be held at Denver, Colo., with George R. McCormack, Chief Building Inspector, as its host. This meeting will be the final one to complete the work of the Conference for the 1955 Edition of the Uniform Building Code.

Manhole castings require adjustments to meet the grade of the recapped pavement.

Recaps for Old Streets

Grand Rapids renovates 25-year-old streets that carry heavy arterial traffic

By CHARLES W. DARLING, *Director of Public Service, Grand Rapids, Mich.*

WHEN A STREET has been carrying commercial and industrial traffic and serving as the route of a state trunk highway or major street for more than a quarter of a century without showing subgrade failures, then you can reasonably expect to save all, including existing wearing surface, by recapping with bituminous concrete.

Grand Rapids is engaged in a pavement-recapping program, and since 1951 has recapped 22 miles of major streets. The original pavement, laid some 25 to 30 years ago, is chiefly a concrete base with an asphalt wearing surface. Part of the surface, however, is brick on concrete base, and part is concrete pavement.

In all cases, the base has shown itself capable of carrying the load. But the wearing surface has shown the effects of persistent traffic abrasion. The machine-laid recapping has not only removed these defects, but has provided the smoother riding surface required by today's high-speed and high-volume traffic.

Rather than go to the expense of tearing out the old, worn surface, we decided to cover it with a 2- to 3-inch layer of bituminous concrete, laid in accordance with the standards of the Michigan State Highway Department. The paving mixture is well graded and fairly dense in texture. Large yardages are installed daily by the contractor with mechanized equipment. This type of resurfacing is low in cost and causes little interference with traffic during the paving process since one-half the street can remain open.

By recapping the existing pavement, our largest preliminary expense was the raising of manholes and catch basins to conform to the new grade. Our curbs are high enough so that 2 or 3 inches do not interfere with their usefulness.

A course of bituminous concrete is first laid over the old pavement. Manhole castings are not raised to finished grade with this course, but the base course is shaped to meet the existing casting grade. By so doing, the impact on cars passing over these castings is materially reduced. No barricades or warning lights are placed around these castings with the first course. Later, often several days later, these castings are raised or replaced to finished grade. The final bituminous wearing surface is then laid. Barricades, however, are placed around the castings while they are being raised.

A Barber-Greene paver lays the new surface, which is compacted by a Galion roller.

Repaving Costs

Repaving costs have run to approximately $50,000 per mile, and the work has been accomplished by two paving contractors. Money for the cost of this work has come from our share of the gas and weight tax fund that is collected by the state. For the streets that carry the state highway routes, the Michigan State Highway Department and the city each contribute one-half the cost.

The program was supervised by Millard M. Moore, city manager; Raymond Bruggink, assistant city engineer, and the author.

School sites should be selected long before intensive development takes place.

Cooperation Between

By GEORGE M. RAYMOND
Director of Planning
Harrison, Ballard & Allen, Inc.
New York, N. Y.

THE MAJOR PROBLEM confronting most school boards today is the shortage of basic plant capacity to accommodate ever-rising enrollments.

The problem is, of course, primarily a financial one. In most instances, the issues being debated heatedly before local school referenda are merely rationalizations of the communities' reluctance to see tax rates increased.

The responsibility for paying for adequate schools cannot be ignored, but must be assumed at some level of government. In some areas, this responsibility is assumed by the state, in the form of state aid for school-building programs. (In Connecticut, for example, the state contributes at least one-third of the cost.)

"Healthy" School Financing

State aid may not be the only way out of present school-financing difficulties, but a way must be found if a healthy social structure is to be maintained. Currently, there are attempts by one community after another to bar the settling within their borders of people of moderate means. The reason usually given is that small houses or apartments "do not pay their way in taxes." This attitude is disturbingly reminiscent of that prevailing in 18th Century England. There, under the Poor Laws, each parish was responsible for the support of its poor. In order to evade this responsibility, parishes went to extremes in trying to expel their poor (and even the prospective poor!) beyond their borders. That this sort of procedure led to complete chaos was recognized two centuries ago. And yet, blindly, our communities are today reverting to what is, by extending the analogy, substantially the same kind of thinking.

The ultimate result of barring people from any given community on the basis of their income will be the creation of "rich" and "poor" communities, following which some sort of outside aid will become inescapable if any equalization of school-plant standards is to be achieved.

The tools presently available to both the school and planning boards are inadequate to solve the problem. Once an agreement on a way to proceed is achieved, the planning board should recommend to the governing body to undertake such steps, political or otherwise, as may be necessary.

The planning of a school plant must be carried on simultaneously on two planes: intensive short-range planning (of the "how shall we accommodate next September's enrollment" variety) and long-range planning aimed at eventually integrating the schools into the master plan of the community.

Some school boards still rely on intuition and guesswork rather than on a regular school census in arriving at short-range enrollment forecasts. We are living in an age when statistical methods to arrive at population forecasts are invariably inadequate by reason of unprecedented and unpredictable population migrations of overwhelming magnitudes. However, a school census is regularly conducted in most communities. The planning board should be aware of the unparalleled opportunity such as a census presents to it of securing invaluable data on which to base its plans.

School-census enumerators must contact every family in the school district. By adding a few judiciously selected questions to the census-enumeration card each year, the planning board could assemble data on population migration, shopping habits, employment needs, travel patterns, use of facilities, and so on. The small extra cost involved in collecting and tabulating this additional data could be borne by the planning board. In view of the fact that most planning boards are handicapped by the inadequacy of published data,

Barring low-income residents from a community because small dwellings "do not pay their way in taxes" is reminiscent of 18th Century England, where parishes evaded legal responsibility for their poor by expelling them.

School and Planning Boards

The school census presents an unparalleled opportunity of getting essential facts.

this opportunity of periodically securing essential facts about the community should not be missed.

The determination of the over-all school needs of a community is the first step in the formulation of a school capital-outlay program. Assuming that it is found that the school plant must be expanded, the first problem confronting the school board is that of site selection.

This problem is a small one if an active planning board, in cooperation with the school board, and based on a realistic zoning pattern, has already formulated a future school-location plan. Even less of a problem exists in communities where sites are actually acquired in advance, as they should be wherever there is reason to believe that a need for them is likely to arise. Should the forecasts of population growth prove to be erroneous, such sites can always be disposed of at a later date. The loss in revenue resulting from the removal of several acres of vacant land from the tax rolls is minor compared to the extra cost of acquiring sites during a building boom.

Foresight May Mean Best Site

Furthermore, in selecting sites long before intensive development takes place, the planning board will have first choice and can select the best sites available. Only too often, otherwise, school sites finally selected are available only because rocky or swamp subsoil conditions make them unsuitable for residential development. Since, however, no other sites are available, the community is forced to pay the price of improving such properties.

The selection of a school site, its size, and the type of its development should be worked out in close coordination with the community's recreation needs. The planning board is the logical liaison agency between school and recreation authorities.

When a school board is first faced with the need to expand its school plant, it may not always be clear whether the solution lies in providing a new school in a sparsely settled area, or whether it is preferable to enlarge an existing school. Educators have arrived at a certain minimum school size, below which the plant is considered to operate at less than minimum efficiency. At the same time, however, there is a maximum desirable school size, which can be exceeded only at the cost of transforming what should be an intimate, child-scaled environment into an overwhelming institution.

But too often school boards prefer to add rooms in excess of the maximum number desirable onto an existing school rather than erect a small school in a relatively undeveloped area. This policy is often erroneous on two counts: it results in excessively large schools in the older sections of the community, on generally inadequate sites, and it also postpones the time when newer sections can qualify for schools of their own. The planning board's forecast of the rate of development in various areas can be exceedingly valuable in assisting the school board to arrive at proper decisions.

Estimating School Population

The planning board can also aid the school board in arriving at decisions relative to the existing school plant. In mapping each successive school census and superimposing it on a block-by-block map of dwelling units, the planning board can easily determine whether, in any given built-up area the child-dwelling-unit ratio is rising or declining. In formulating the zoning pattern, the planning board can, and should, take into account the adequacy or inadequacy of the school plant. Finally, in communities which contemplate physical redevelopment, the planning board can physically change the complexion of selected neighborhoods, or create desirable school sites, if such are needed.

Another matter of common concern to the two boards is school districting. Superficially, this seems to concern the school board alone, since theoretically all that has to be done is to draw district lines so as to fill up every school in the community. However, existing and proposed major highways, belts of nonresidential uses, topographic features, and other physical factors should be taken into account. Cooperation rather than unilateralism on the part of the school board in this area of activity can save the community money in school-crossing protection.

Planning the Physical Layout

Finally, the physical layout of the school site should be worked out jointly by the two boards, particularly with respect to the relationship of entrances and exits to the traffic pattern on surrounding streets, to the relationship of the playground (often an excessively noisy facility) to the surrounding residential area, and to the availability of utilities, street improvements, and the like.

These, then, are some of the areas where close collaboration between the school and planning boards can produce telling results.

From the school board's point of view close cooperation with an active planning board can be exceedingly worth while from a public-relations standpoint. The studies produced by the planning board have an objective validity not usually ascribed to studies conducted by an agency in support of a request for more funds. No one can accuse the school board of acting with intransigeance, or of adopting a "public be damned" attitude if it acts on the recommendation of, or in cooperation with, the planning board.

The National Citizens Commission for the Public Schools, 2 W. 45th St., New York 36, furnishes advice and publications to those interested in school improvement.

Civil Defense

What's being done—and what isn't

THE NEWSPAPERS can hardly be accused of soft-pedaling the dangers of atomic attack. It may be presumed that everybody knows about these dangers and weighs them in his particular scales.

When in 1951 the need for creating a civil-defense organization on the local level with over-all guidance became apparent, THE AMERICAN CITY formulated a policy and a program of monthly major studies running through the year. The principal titles were:

What Civil Defense Is
What Could Happen in Philadelphia
Emergency Medical Care
Police Work in "The Philadelphia Holocaust"
Clearing Up the Debris
Water-Works Countermeasures

It was plain that there were three moves to make in every city harboring industry and in every nearby municipality. The first was to provide an adequate air-attack warning system, the second was to establish emergency communications that would stand up, and the third was to create the nucleus of a relief and mop-up organization.

There may be time to make a fourth move, whose essentiality is just beginning to be sensed. This is to make a sincere and successful effort to solve the local and the over-all traffic problem so that in the event of attack, panic evacuation may not clog the streets and highways, destroying many of the survivors and would-be survivors. This move needs to be taken for the welfare of every community even if an air attack never comes. Should there be attack, the belt freeway and the cars parked along it outside the congested districts may be the difference between catastrophe and catastrophe compounded.

What has been accomplished since that series of articles presented facts and needs of local civil defense? One answer can be expressed in terms of what has been done about the provision of that first line of preservation—warning-device systems.

In the words of Col. William M. Talbot, Director, Warning and Communications Office, Federal Civil Defense Administration, Washington, D. C.: "Certain cities, notably New York and Philadelphia, very early realized the need for warning and made substantially complete system installations prior to the availability of federal matching funds. Some eligible cities for reasons of their own, have provided little or nothing in the way of warning equipment, even though federal matching funds were available to them."

It is now no longer necessary for municipalities to wonder whether or not they are in target areas. On July 1, 1953, the Federal Civil Defense Administration issued "Target Areas, Their Population, Principal Cities and Counties."

Atomic weapons are employed most effectively against centers of population and industry. The nation's standard metropolitan areas comprise our major urban centers and, as such, provide a practical and established yardstick of urban concentration. Each of these areas, by definition, contains at least one city of 50,000 people or more, and include all of the closely linked surrounding area.

Critical Target Areas

All standard metropolitan areas are designated as target areas for civil-defense purposes. Those standard metropolitan areas containing high concentrations of industry as well as population, that is, 40,000 or more employees engaged in manufacturing, are designated as critical target areas.

The list comprises 193 target areas, 70 of which are critical target areas. These critical areas alone have a population of 67,751,000.

The capabilities of modern weap-

Index of Over-all CD Action

Atlanta	four control centers
Birmingham	planning
Cincinnati	recruiting, microfilming records, installing radio in fire apparatus
Dayton	warning system completed
Denver	three control centers
Fort Worth	control center and warning system being installed
Jacksonville	15-unit air-warning system in operation
Jersey City	four rescue trucks
Kansas City	complete air-warning system
Louisville	no adequate warning system
Memphis	air-warning sirens remote-controlled
Miami	10 Chrysler sirens will give complete coverage
Norfolk	warning system in operation, communications equipment, and standby electric power
Oakland	two control centers, five 180-hp sirens
Omaha	60% warning coverage
Portland	new warning system, underground control center
St. Paul	planning
San Antonio	planning
San Diego	planning

ons of mass destruction are so great that a successful attack would cause damage and casualties far beyond the resources of any area. Also, this list does not include all possible targets for biological or chemical attack. This type of attack could be employed against any part of the country, rural as well as urban. Therefore, the resources of the entire country must be mobilized for civil defense.

Col. Talbot sums up what has been done and the availability of 1954 federal matching funds: "The estimated coverage of the warning-device systems in the 262 cities in these areas will average about 53%, after giving effect to the funds approved for them under the 1953 program. In addition, many of the smaller communities lying within the target areas have some degree of coverage. However, the numbers of these smaller communities, their size categories, and the degree of their warning-system development, are not available.

Basis of Federal Appropriation

"The allocation among the states of the federal appropriation for contributions is on the basis of population. The amount allotted to each state is first earmarked for the various programs within that state.

"Provision of systems for warning the population of areas of probable attack currently has the highest priority in civil defense. In the initial distribution of 1954 federal matching funds to eligible programs within each state, the states should first provide sufficient funds (on a matching basis) to bring the warning-device system (1) to 100% completion of all Civil Defense Critical Target Cities, and (2) to approximately 90% completion of all Civil Defense Target Cities. However, no state will be required to distribute more than 50% of its total allocation to the Warning Device System Program. In the event the warning funds are not matched by the state, they may not be used for other programs by that state, but will be reallocated for warning in other states requesting additional warning funds. It is believed that this procedure will tend to insure optimum warning-system coverage with the minimum of delay."

Reports to the American Municipal Association from 30 to the 34 cities of 200,000 to 550,000 show that 13 cities spent $115,526 less than in 1952 and 15 cities spent $898,806 more. The largest increase in expenditure was $640,000 by Portland, Ore., against $40,000 in 1952. Portland's activities include zoning of civil-defense sectors and evacuation routes.

The final Thunderbolt of the city-wide siren system sounds in St. Louis, Mo.

Control centers and warning systems were being put into operation in Atlanta, Fort Worth, and Oakland. Complete siren installations were reported only by Dayton, Jacksonville, and Norfolk, with progress under way in eight other cities. The following list compiled from some of these reports will doubtless hit the keynote for CD activities and status generally in the larger cities.

Community Responsibility

Civil Defense is developing a type of community responsibility for which there had previously been no "school." All over the country on city, county, and state levels Directors of Civil Defense have been appointed. There is little incentive to appoint a stuffed shirt to this job. One would expect that, for his own safety, the appointer himself would want the best man available to be at the head of the local, the county, the state, and the federal CD organization should the sirens wail in earnest.

These good men have a future even should the next few years see a subsidence of the world's turmoil. An interesting proof of it is some recent correspondence between THE AMERICAN CITY and the St. Louis Office of Civil Defense. On January 15 and on August 13, 1953 this magazine wrote the Director of Civil Defense, Raymond R. Tucker, for a description of the warning system for the City of St. Louis and in both cases received a reply from Mr. Tucker. In the first case, the sirens had not been purchased; in the second case, they had been ordered from Federal Enterprises, Inc., of Chicago, Ill., but had not been installed.

On September 15 advice came that the last of the air-raid sirens were being installed and the photograph shown here was enclosed. The information was furnished by a new Director of Civil Defense, F. P. Hardaway; *Mr. Tucker having meanwhile become Mayor of St. Louis.*

OLD CITIES—

By ORIN F. NOLTING
Assistant Director
International City Managers' Association
Chicago, Ill.

EUROPEAN city governments are doing a remarkable job in the face of great difficulties. The two World Wars have adversely affected their municipal economy. Dusseldorf, Germany, for example, a city of 600,000, was 60% destroyed by bombing in World War II. Because of the housing shortage, 60,000 people who formerly lived in the city have not been able to return, but 80,000 refugees from East Germany, 13% of the population of the city, have been assigned to Dusseldorf. In Cologne 75% of the city's homes were destroyed by bombing. But German cities, as well as those in Austria, England, and Holland, are rapidly recovering from the destruction and ill effects of the war.

European cities, on the whole, are attractive in spite of their old buildings and narrow streets. The beauty of some cities lies in their tree-lined boulevards, parks, and other open spaces, and in the absence of the gridiron street plan. The highway approaches to cities are not marred by signs and unsightly buildings. In fact, billboards and large signs are prohibited. Public control of land on the fringe of towns also enhances the attractiveness of the urban area. Kirchheim-Teck, Germany, a city of 21,000 people, owns most of the land on the fringe of the city, including a range of hills which is covered with fruit orchards. On another side are parks and playfields of various kinds, and on still another side of the city are farms owned by the city but leased to farmers for operation.

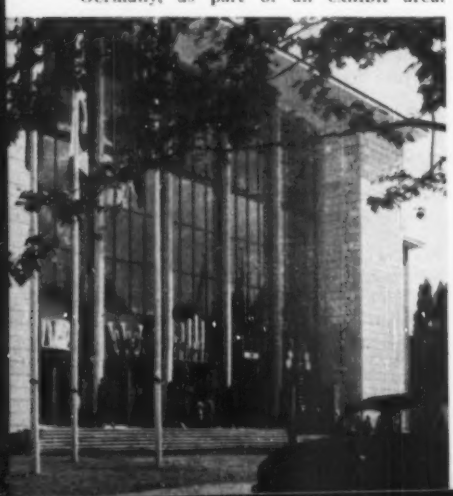
The city halls are interesting. Those built during the Middle Ages contain banquet halls. Three cities I visited were erecting new city halls, but several other cities referred to 100-year-old town halls as "new." In such places the older city halls, still in excellent condition, are used to house archives, art galleries, or museums. Often one of the best restaurants in a city is found in the city hall, as, for example, in Munich and Vienna.

Among the larger cities that are building new city halls are The Hague, Holland, and Dusseldorf, Germany. The city hall at The Hague, recently completed, has administrative offices in one wing and technical services in another wing (see photo).

* EDITORIAL NOTE: This article is based on a talk presented at the 39th annual conference of ICMA in Los Angeles in September. Last spring Mr. Nolting visited a score of cities in six European countries. He also attended the XI Congress of the International Union of Local Authorities held in Vienna as a representative of the American Committee for International Municipal Cooperation, and he prepared the report for the United States on the main topic of the Congress.

Lounge in Wellington Gardens old people's homes, Coventry, England.

Reception building built in Dusseldorf, Germany, as part of an exhibit area.



Completed recently, the city hall at The Hague, Holland, can accommodate 1,100 bicycles in its basement parking area, and contains a coffee kitchen and archives room.

Space is provided in the basement for parking 1,100 bicycles. It also contains a coffee kitchen and a room for archives. On the roof will be a canteen for 200 persons and a terrace. Offices that are most frequently visited by citizens on business are on the first floor. The telephone system is so arranged that a number of officials in various offices can hold group consultations.

Geneva's City Hall

A most interesting city hall is the one in Geneva, Switzerland, where the council chamber on the third floor is reached by a ramp. This construction permitted council members in the 13th Century to ride their horses up to the door of the chamber. In the chamber itself is a large painting showing six councilmen with their hands cut off at the wrists. In the center is the chairman, the seventh councilman, with his left hand off and his right hand clutching the mace. The lesson of the painting is that councilmen should not put their hands on city funds.

Streets and sidewalks generally are cleaner than in most of our cities. Dusseldorf, for example, uses an automatic street sweeper which scrubs the gutters clean and picks up the dirt. Operating on the principle of a vacuum cleaner, it is considerably more efficient than the ordinary street-sweeper machine.

In Zurich, Switzerland, garbage and trash are collected by city trucks, which have aluminum bodies and automatic loading and packing devices. Disposal is by incineration. The cost is met by a service charge based on the number of rooms.

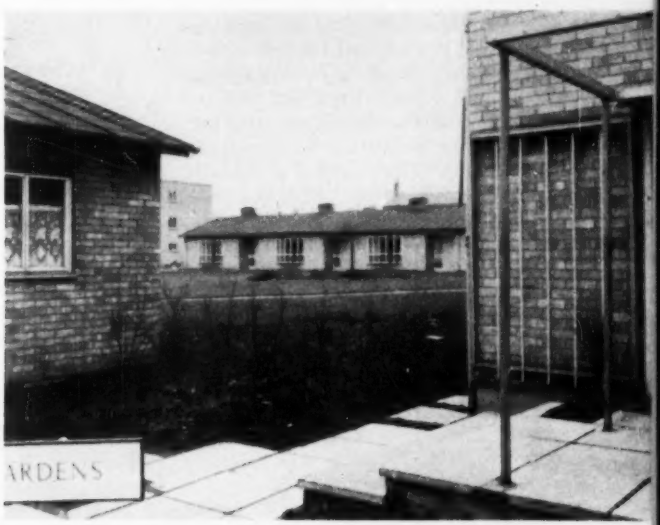
There are no wastepaper and trash in the gutters or on the sidewalks. At Piccadilly Circus in London I saw a woman throw some paper on the sidewalk. It was immediately picked up by a policeman who handed it back to her, saying politely: "Lady, did you drop this paper?" When she took the paper, he said "Thank you."

Mass Transit Excellent

Mass-transit facilities generally are excellent and provide frequent, fast, and comfortable service at low cost. Fares everywhere are based on zones. On buses the conductor asks the passenger where he is going and gives him a colored ticket when he pays the fare. On the subway tickets are given up at the point of exit. The movement of buses is not impeded by private traffic in the central business districts because parking or standing at the curb on main thor-

(*continued on page* 173)

NEW IDEAS



An exterior view of the Wellington Gardens old peoples homes.

Built by a cooperative association, this Geneva, Switzerland, apartment houses two classrooms and two playgrounds for a nursery school.

This "Children's Village" in a small German city, was built in 1951 with funds from industry and government.

Heavy-duty excavation is required to bring the street to the proper grade.

Pit-run gravel compacts easily to form a firm base course that varies from 8 to 18 inches.

Before compaction, a patrol-grader mixes and spreads the asphalt mat.

Good Streets

A FEW YEARS AGO, the streets of Grants Pass were far behind the times. The municipality had a two-fold street problem that was getting worse every year. First, the need for more and better streets was growing. The city, located in southwestern Oregon, has a population of slightly over 8,000. Its moderate climate, mountainous terrain, and white-water streams attract tourists who are as important to the economy of the city as agriculture and mining. The population has grown steadily since 1940 and shows no sign of slacking.

Secondly, prior to 1949, the city's 52 miles of dedicated streets had been allowed to deteriorate badly. In that year less than 8 miles of the streets could claim surfacing that could be described as all-weather pavement. At least 2 miles of the streets were paved only on the centrally traveled strips, with dirt and decayed granite on each shoulder. The remaining 44 miles of streets remained as unimproved as they were when they began to be used for travel 50 or more years ago.

To add to the already difficult maintenance condition, the city had made a practice of using decayed granite found in the area for surfacing. Unfortunately, this granite cannot be used successfully either as a base material or in bituminous mixes. When wet, the granite forms a plastic, muddy mass that has a high percentage of silt. When dry, it becomes dusty. Great quantities of the material had been hauled and spread on the unimproved streets with very unsatisfactory results.

Until 1949, the street department tried to grade and maintain the streets. This effort produced no permanent results and actually distressed property owners and merchants because of the dust and mud.

Ten-Year Plan

In 1949, the author presented to the Common Council of the city a set of recommendations aimed at paving most of the traveled streets within a 10-year period. The principles embodied in the report were as follows:

1. Any portion of money which could be diverted from street maintenance and applied to the construction of permanent streets would offer manifold returns in the form of a progressively smaller street-maintenance program.

2. Permanent pavements could be built by the city's maintenance forces at low cost by skillful selection of inexpensive materials that would be locally available.

3. No street would be paved unless property owners financed the construction of curbs and gutters. Thus, surface drainage on streets would be provided along with established grades.

4. Abutting property owners would be assessed one dollar per front foot for the cost of street paving. With this policy, the property owner would pay an assessment that was not excessively high, and yet the city would be offering a "free" program.

5. Construction equipment would be purchased through a bond issue and other sources so that work could be conducted efficiently and ordinary maintenance would not be neglected.

6. A stepped-up program of street cleaning, including modern sweeping and flushing equipment, would be adopted.

Educational Program

The program started slowly. The people required education through press, radio and personal contact so that they would understand their part in the program. Many persons refused to believe that a good street could be built for the money that they were being assessed, failing to understand that much of the cost was

The finished pavement awaits final sealcoating in which the asphalt layer is immediately covered with a light coat of crushed rock particles no larger than ½ to ¼ inch.

Cost Less

By JOHN F. PORTER
City Manager
Grants Pass, Ore.

coming from the street-maintenance funds. Several streets were constructed before people were convinced that they were being offered a real bargain. Interest soon flourished to such an extent that, within two years, a waiting list for street construction had been established.

Much of the credit for the success of the work can be attributed to the amount and kind of equipment acquired, and to the training of operators taken from the ranks of existing personnel. The equipment includes one unit each of a Koehring ¾-yard power shovel, Lorain ¾-yard power shovel, International TD-9 tractor-dozer, Bucyrus-Erie 5-yard scraper, Hough 1½-yard loader, Huber 10-ton roller, Burch 11-foot aggregate spreader, Wayne 3-yard power sweeper, Schramm 105-cfm compressor, Hobart 300-amp gas-engine welder, G. E. 300-amp electric-motor welder. We also have one 2,000-gallon flusher, four dump and three pick-up trucks.

We acquired miscellaneous apparatus as we needed it: pumps, trailers, windrow sizers, and tar kettles. Other equipment, such as an asphalt distributor, we rented.

For base material, pit-run gravel is used. Large rocks are put through a crusher so that particles do not exceed 3 inches in size. The material comes from bars in the Rouge River and is replenished each year by melting snows from the Cascade Mountains. The material packs very tightly upon rolling, but requires leveling courses of finely crushed rock and decayed granite to supply the finished base surface.

The Subbase

In areas with unstable clay subsoil, a layer of decayed granite is placed as a subbase to give support during the wet season. The thickness of the base material varies from 8 to 18 inches, depending upon the subsoil and anticipated traffic conditions. A tack coat of MC-2 asphalt, applied at the rate of 0.3 of a gallon per square yard, is placed on all base courses.

The crews quickly learned how to mix the asphaltic surfacing material. To simplify the process, only the MC-2 grade of asphalt is used throughout the program, except for final sealcoating. Because of the open-type grade of crushed rock that is available for the mix, a light grade of asphalt is effective, especially when conditions dictate advance mixing and stockpiling of the mix.

All mixing is accomplished by sizing the crushed mixed rock in windrows and applying hot asphalt, with a distributor, to layers of rock that have been cut and turned by the graders. The asphalt content rarely exceeds 5%. After the surface material has been mixed and allowed to cure for a day in windrows, it is then spread across the entire width of the street and rolled until fully compacted. Subsequent rolling, a day or so later, has been found to produce a much more satisfactory surface.

Because of the very light and infrequent freezing temperatures experienced here, sealcoating is allowed to wait until the year after asphaltic-surface material has been placed. Sealing consists of applying 0.3 of a gallon per square yard of asphalt with a 120 to 150 index of penetration which is covered immediately with a light coat of crushed rock particles that vary from ½ to ¼ inch in size.

Strangely enough, our people have discovered that the city is not being bankrupted by the operation of this unusual street-improvement program. The street department operates on an annual budget of $70,000, derived from state gas and license taxes and county road tax. This revenue has proved ample for financing the city's share of the work. The cost of paving a typical residential street, measuring 36 feet between curbs, has averaged $1.75 per square yard. This sum includes all materials, labor, services, and equipment rental at Associated Equipment Distributors' rates.

The appearance of the city brightens with each new street that is paved. The 8 miles of street paving of a few years ago has been augmented by 10 more miles of neatly paved and guttered thoroughfares. In addition, more than 5 miles of curbs and gutters have been built in anticipation of new streets. The influence of neatly paved and cleanly swept streets has been extended to homeowners who have invariably spruced up houses and yards as soon as construction work on their streets is complete.

1 Lubricant Replaces 20

at Los Angeles Hyperion sewage-treatment plant

By W. A. SCHNEIDER
Waste Disposal Engineer
Bureau of Sanitation
Los Angeles, Calif.

LUBRICATION, utilizing a single type of grease for practically all equipment, regardless of type or service, is an accomplished fact in Los Angeles' Hyperion sewage-treatment-plant. The plant, costing $42,000,000, was placed in operation by the city in May 1950.

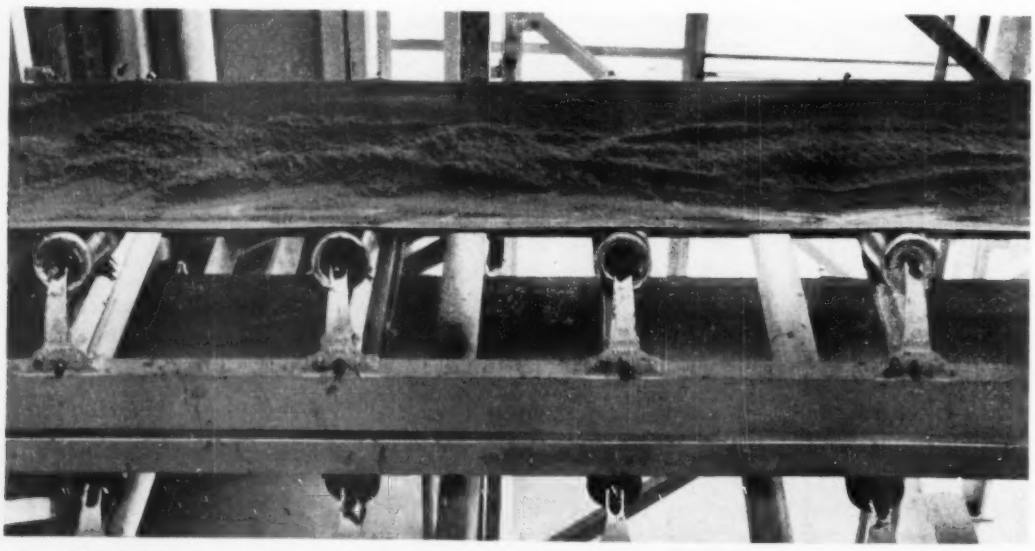
Although manufacturers' specifications called for more than 20 different grades and brands of grease, Hyperion's maintenance men selected one all-purpose grease to serve the equipment. The grease chosen is Alvania No. 2, a lithium-base grease formulated with 12 hydroxy stearic acids.

The grease functions for such diversified purposes as the lubrication of ball bearings in electric motors that operate at speeds up to 3,600 rpm, conveyor sleeve bearings exposed to highly abrasive dust, and even in plug valves that were formerly "stick" lubricated. The reliability and versatility of the lithium grease is demonstrated by the fact that Hyperion has yet to experience a breakdown because of faulty lubrication. The grease is even being used to lubricate bearings on raw-sludge pumps.

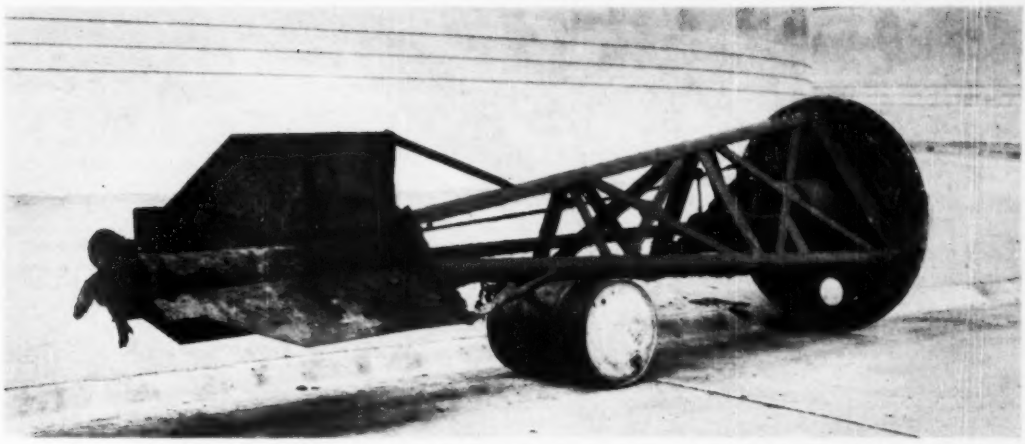
By using one grease for essentially all applications, Hyperion has dispensed with specialized lubrication training for its maintenance men. Most lubrication work is done by operational personnel. Consequently, although 40 of the total staff of 275 men are maintenance workers, only one full-time lube man is employed. He is assigned to the filter-dryer plant where abrasive sludge dust makes continuous lubrication necessary.

Thirty Per Cent Saving

Hyperion's administrators estimate that this simplification has effected a 30% saving in time and in manpower, based on normal maintenance lubricating practice. Only one grease container needs to be transported through the 76-acre plant to



Dried sludge is carried on a 24-inch-wide weighing conveyor to be processed into fertilizer pellets.



The propeller-type mixer that is used in the sludge digester tanks requires a water-resistant lubricant.

the point of application. Storage, purchasing, and inventory costs are also reduced.

Shell Alvania grease is made from hydrogenated castor oil, lithium hydroxide, high-grade mineral oil, and oxidation inhibitors. An interesting use of the grease is in plug valves, in both liquid and gas services. Some of these valves are either "normally closed" or "normally open." They are operated, for checking purposes, only at monthly intervals. When the recommended lubricants were used, there was trouble with sticking valves. Hyperion's engineers changed the former fittings from the original stick-type to the standard button-type, grease-gun fittings. Neither sticking nor sealing problems, even in the high-pressure effluent lines, have been encountered.

Diversified Applications

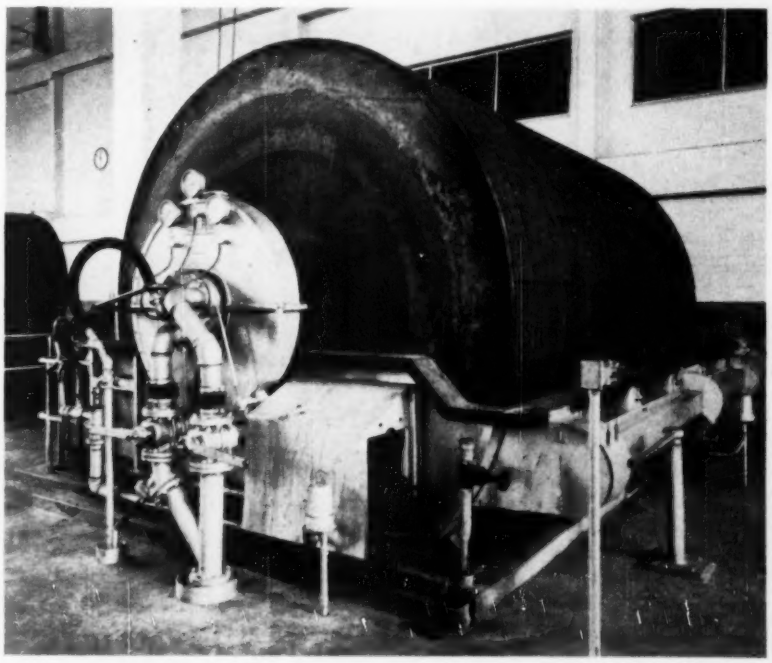
Another satisfactory application that Hyperion has discovered calls for high-water resistance in pump-water seal bearings for both centrifugal- and axial-flow pumps. This multipurpose grease is also used as a bearing lubricant on pumps handling sludge and ferric chloride.

Electric Motors Lubricated Every Three Months

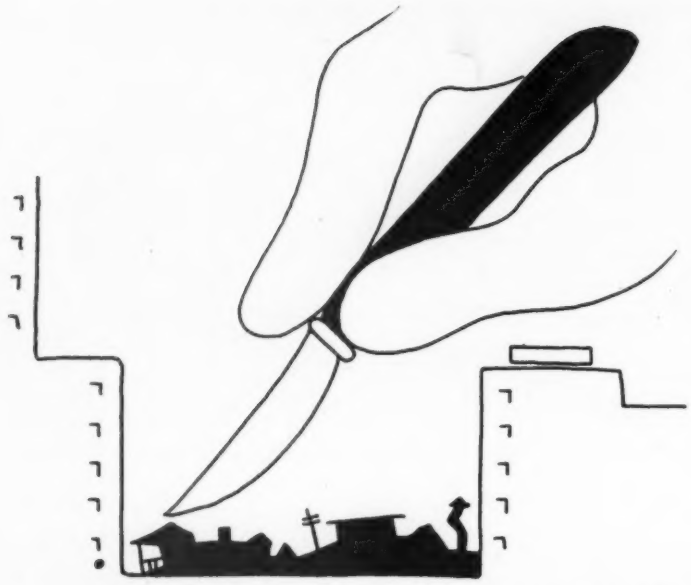
Among the 20 other uses to which Hyperion has put this grease is the lubrication of all its electric motors, which range in size from fractional horsepower to 250 hp and include both sleeve-type and ball-type bearings. The 15-hp mixer motors had been giving bearing trouble because of grease separation, but difficulties ceased with the application of the new lube product. Usual lubrication interval is a three-month period, and overhauls are done on an annual basis.

Much of the process at Hyperion has been conveyorized. There are 16 rubber conveyor belts that range in width from 18 inches to 36 inches, and have a combined length of more than 1,000 feet. There are also some 37 screw conveyors, 10 to 14 inches in diameter, and three bucket conveyors. The majority of the bearings are of the sleeve type, although there are some ball bearings at high-load points. Rotating screws are used in fertilizer bin bottoms to provide positive fertilizer feed. The shafts of the rotating screws are on 1-foot centers. The shaft bearings are fed by a centralized lubrication system. Many of the inaccessible bearings on the conveyors are lubricated from central accessible locations.

The plant serves an estimated total tributary population of 3,000,000 persons and is of the high-rate, activated sludge type. Design dry-weather flow is 245,000,000 gallons per day, and will increase, under storm conditions, to as high as 420,000,000 gallons. Two outfall sewers serve the plant.



A vacuum filter that is driven by a Reeves vari-drive motor dewaters the sludge.



". . . very prompt and effective measures can be taken to reduce vulnerability of our central cities by the speedy elimination of our large slum areas."

Nonmilitary Measures to Reduce Urban Vulnerability

By OTTO L. NELSON, Jr.
Vice-President in Charge of Housing
New York Life Insurance Company

NEARLY EVERY STEP that needs to be taken to reduce the vulnerability of our cities in case of war ought to be taken any way in order to make our country a better place in which to live and work, irrespective of peace or war. This is not a convenient slogan—it is a fact. . . .

The first step must be to inform the public, so that necessary public interest and support will be forthcoming. The second step must be to develop adequate principles and standards in your important field. The entire literature in the field of city, urban, and regional planning needs to be revised in the light of defense needs for living in an atomic era. . . .

A new and vitally important element has been added to existing planning concepts. Principles of urban development and redevelopment must take into account the national security needs in a perilous atomic era. In this connection, it is appropriate to stress that there is no reason to procrastinate because of the increasingly destructive power of the atomic and hydrogen bombs. In my opinion, the point has been reached where the principles and standards for urban development will not be affected by further advances in weapon design. I say this because the destructive effect of atomic weapons has reached the point where the larger-yield bombs will produce a substantial overkill on most targets and are, therefore, wasteful. It is reasonable to presume, therefore, that maximum effectiveness of atomic weapons will be achieved by using a cluster of nominal-sized bombs appropriately distributed around a target instead of one or a few over-sized types. This means that there is no need for the planners to wait; acceptable principles and standards can be worked out on the basis of present knowledge.

It is not possible for me to cover in this talk very many of the technical aspects of Part V of the Final Report of Project East River.* I believe it would be useful for many of you to read this section of the Report and to consider our discussion and recommendations relating to vulnerable urban districts, the problem of protection through spacing, and the ways by which protection can be enhanced through additional protective construction. I believe that in Part V of the Project East River Report you will find a good beginning; certainly, a courageous start on many complicated and highly technical aspects of the problem has been attempted. But may I emphasize that only through wide distribution, followed by objective and critical discussion and analysis, will it be possible to have the Project East River proposals improved and then finally adopted. Unless the Project East

* "Project East River," as most readers of THE AMERICAN CITY doubtless know, was a research project for the Department of Defense, the Federal Civil Defense Administration, and the National Security Resources Board, conducted during the last two years by a special study group of which General Nelson was director. The task of this project was to determine the optimum combination of nonmilitary measures for our national defense.

There are 10 parts to the Report, of which Parts II-A, III, IV, and VII are classified. The remainder of the Report has not been reprinted and is not generally available. A special issue of the *Bulletin of the Atomic Scientists* for September 1953 is devoted to a discussion of "Project East River" and other topics of civil defense. Some of the contributors were also members of "Project East River." This issue is available for $1 from the *Bulletin* at 5750 Ellis Ave., Chicago 37, Ill.

See also the extensive two-part article: "Report on Project East River," by C. McKim Norton in the 1953 spring and summer issues of the *Journal of the American Institute of Planners*. Published at 34 Brattle St., Cambridge 38, Mass., the *Journal* is available at $1 per copy.

River Report be considered as a first working draft and seized upon as such by city, state, and other planning officials, it will come to an untimely end buried in government files.

In the hope of exciting your interest to the point where you will not let Part V suffer this fate, let me point out just a few areas where all of us realize a great deal more needs to be done. In the various studies and discussions leading up to the drafting of the report on the reduction of urban vulnerability and some of the other sections of the Final Report, it became clear that we could ask questions for which we did not have answers.

Property Tax and Development

As an example, it seemed to us that one of the major obstacles deterring central cities from adjusting themselves to the atomic and mechanical age was that the real estate property tax constituted such a main source of municipal revenue. This situation contributes more than all other factors in forcing the utilization of the last square inch of available land. It induces 100% coverage of site. It is a great deterrent to low coverage density.

Somehow this reliance on the local real estate property tax must be changed if cities are to develop in the manner needed to meet the requirements of an atomic era or, for that matter, even the needs of present-day living during peace. And so the whole question of better spacing, lower densities, not only in terms of persons per block but also in terms of building coverage of the entire lot, and a number of other similar items are irrevocably tied up with the real-estate property tax.

A Problem to Be Solved

Unfortunately, planning officials have been reluctant to enter this controversial field. This is a tribute to your discretion, but the time has come when you must grapple with the tough problem of how the real estate tax can be used as an effective tool in promoting better land use, lower densities, better zoning, and all the other requirements needed to permit urban areas to exist in a perilous atomic age. Somehow the property tax must be changed from one of the great enemies into a friend and helper. This we did not know how to do in Project East River, so let me throw the challenge to you.

Another area for which Project East River did not have the time, facilities, and degree of expertness to handle was the problem of worker transportation in relation to intensity of land use. It is clear that this entire area is deserving of a great amount of study because it is not being solved for our normal present-day peacetime living, and it looms as a greater major factor in the atomic age that is ahead. This field includes not only arterial and circumferential throughways but it involves the entire problem of mass passenger transportation and improving what can only be properly described as the home-to-work-and-return ordeal.

Another area very much in need of further study is the entire field of regional planning, regional organization, and regional taxation — in short, the regional or metropolitan area problem in its entirety. . . .

Because I have pointed up some questions and problems where better answers and programs are needed than Project East River was able to devise, please do not conclude that the whole problem of reduction of urban vulnerability is insoluble or that our present state of apathetic lethargy is justified. A careful study of Part V of Project East River's report will demonstrate, I believe, that there are many workable and practical steps that can be taken.

Surgery Needed for Slum Areas

Usually the problem closest to you appears to be the most difficult. Despite this, I believe that very prompt and effective measures can be taken to reduce vulnerability of our central cities by the speedy elimination of the large slum areas. There is scarcely a single city in America that does not have around its central business district the cancerous malignancy of slum areas. In most cases, nothing short of surgery can remedy the situation. There may be a few cases where block by block rehabilitation may be feasible, but for the long pull I am exceedingly skeptical about the success of this type of superficial treatment.

The requisite first step is that our municipalities not only enact but also enforce stringent laws relating to occupancy, type of use, and other use standards normally administered by the Health Department, the Fire Department, and the Department of Building and Housing.

A second immediate step is an appropriate readjustment of the tax structure. What is needed, then, is a strong combination of corrective forces that will make slum and potential slum buildings so unprofitable that their owners will welcome condemnation or sale to the city.

Condemnation and Redevelopment

It would seem to me that the necessary third step is a continuous operation by a duly constituted public agency in condemning slum areas, relocating the families, and demolishing the buildings. Then there will be no difficulty in getting the reclaimed areas developed by private enterprise, but this should be done only after rezoning and other needed restrictions have been imposed which will insure that the future development and rebuilding of the area will conform to the standards suggested in Part V. This is to say that the future physical layout for both residences and industry will conform to not only twentieth century working and living requirements but also to those needed for the existence of our urban areas in a perilous atomic age.

The machinery for effective federal aid in slum clearance already exists by virtue of the provisions of Title I of the Housing Act of 1949. As you know, this act provides two dollars of federal funds for each dollar of local funds. All that is needed is that this federal program be expanded and expedited with top priority to be given to those slum areas that are potential fire or storm areas. These constitute an especially dangerous hazard in an atomic war.

Fire Storm Areas

Any collection of inflammable buildings with land coverage of 20% or higher extending over a square-mile area constitutes a potential fire storm area. Herein the heat and blast of an atomic bomb will cause such a large number of primary and secondary fires throughout the locality with the result that the inhabitants will perish by suffocation, if not by blast or burning. Thus, the slum areas that are at present such blights on our cities constitute an even greater threat to our national security.

When this is understood by all concerned, it should be a simple matter for the federal government to map these potential fire storm areas

(*Continued on page* 177)

EDITORIAL NOTE: This article comprises parts of an address by General Nelson in Detroit, on October 12, 1953, at the annual meeting of the American Society of Planning Officials, on "The Planning of American Cities in an Atomic Era." The address included an eloquent plea for a fundamental restudy of urban planning problems and prompt action thereon as affecting our national existence in the years immediately ahead.

St. Louis Gets a Bargain

Shown above is the blighted area adjacent to St. Louis' downtown district. Below is an artist's conception of its appearance under redevelopment work has been completed. Seven apartment houses will be built alongside a wide parkway.

Citizens approve a bond issue of $1,500,000 to clear and redevelop an 8½-block area

ST. LOUIS has obtained a real civic bargain. And it's a bargain available to any major city confronted with decaying or blighted areas.

By a resounding majority of 77,927 "yes" votes to 28,650 "no" votes, the citizens of St. Louis last September 29 approved a $1,500,000 Plaza Bond Issue which will more than pay for itself financially and will be worth many times the amount of the investment in terms of civic rebirth.

After the election was over, I remarked that it was a victory for all St. Louisans, for it has opened the way for a long-overdue rebuilding program. But this victory would have been impossible were it not for a remarkable job by some of our top civic leaders in presenting the facts to the public.

A "Number One" Eyesore

The area of 8½ square blocks, between Memorial and Aloe Plazas and adjacent to the downtown district, has long been regarded as St. Louis' number one eyesore. It is also an area with an alarming trend of decay. Located directly opposite Union Station, it is really the front door to our city, giving visitors a rather unsatisfactory first impression.

More than half of the 100-odd structures there are over 50 years old and 20% are more than 75 years old. There are 41 dwellings in the area, 11 hotels, and 17 rooming houses. Of the 41 dwellings, the City Plan Commission termed 37 "dilapidated." There are 31 dependent on stove heating; 15 have no hot water; only 31 have private baths, and there are only 21 private flush toilets. "Generally," the Commission reported, "the housing accommodations fall far short of the minimum standards required for health, sanitation, and decency."

It long had been a civic dream to join our two beautiful plaza areas into a nine-block-long parkway, flanked by City Hall, Soldiers' Memorial, the Federal Building, Civil Courts Building, and other civic attractions. The method of accomplishing this, and of making a major start on slum elimination, became apparent when Congress passed the Housing Act of 1949.

Under the terms of this legislation, the federal government, through the Division of Slum Clearance and Urban Redevelopment of the Housing and Home Finance Agency, stands two-thirds of the cost of clearing land in blighted areas and reselling it to private redevelopers at "use value." There is a provision that the city's one-third share can be in the form of public improvements, which, in our case, will be the parkway extension.

Shortly after this legislation was passed, a group of business and civic leaders formed the St. Louis Urban Redevelopment Corporation. This nonprofit organization plans to use approximately 5½ blocks of the area to be cleared for a $20,000,000 middle-income housing project consisting of seven 12-story apartment buildings with 1,350 dwelling units. In addition to relieving a critical housing problem and opening the way for similar development in the future, the project will provide an estimated 4,000,000 man hours of labor, equivalent to two years' work for 1,000 men.

Giving the Public the Facts

This favorable vote couldn't have been obtained if it were not for an outstanding public information job on the part of some of our civic leaders. The same bond issue had failed at the city primary election last spring, largely because there was more interest in the political campaign and the public just didn't have the full facts.

When it was decided to give it another try at a special election, I called in Edwin M. Clark, president of Southwestern Bell Telephone Company, who proved to be the number one hero of the occasion. I knew what he could do, because he had recently headed a successful campaign for a master traffic-control plan,

By **RAYMOND R. TUCKER**
Mayor
St. Louis, Mo.

which has St. Louis traffic moving faster than at any time in recent years.

Mr. Clark readily agreed to serve as Chairman of the Citizens' Committee and immediately started firing with both barrels. He organized a committee that did the best job of public information I have ever seen. He seemed to be everywhere at once, lining up a speakers' bureau, working with the newspapers and radio and television stations, rounding up organizational support, and in general doing everything a committee chairman should do but frequently leaves to others.

Virtually all of the major civic and business organizations joined ranks —the League of Women Voters, the Chamber of Commerce, Civic Progress, Inc., service clubs, the St. Louis Urban Redevelopment Corporation, neighborhood associations, and most of the political ward organizations. The chief obstacles were a distorted and sometimes untrue presentation by the small organized opposition, a certain amount of public apathy, which is always found, and a disinclination on the part of some citizens to authorize increased expenditures when the cost of all levels of government is already so high.

Mr. Clark and his committee met these obstacles by presenting the

facts truthfully and simply and by proving to the public that they were really getting something for nothing. Former Mayor A. P. Kaufmann, president-elect of the Chamber of Commerce, was chairman of the subcommittee on employers and employees. This subcommittee contacted 763 firms and institutions employing 403,000 persons. Other Chamber officers organized support from their own membership and other groups.

Here are the facts that were presented to the public to prove that the prospect will be self-liquidating. During the next 30 years this same land, in its present condition, would yield only $1,260,602 in taxes. Under state law, tax concessions are granted as an inducement to private redevelopers. But we will still be money ahead. For the first 10 years only the land will be taxed, yielding $273,659. For the next 15 years the land will be taxed at full value and the improvements at 50% of assessed valuation, bringing in $2,252,489. Thereafter everything will be taxed at full value, yielding a total of $1,364,829 during the next five years. Thus, during the 30-year period the city will realize $3,890,979 at our present rate of taxation. This is $2,630,376 more than it would receive with the present improvements, and represents a 75% profit on the original $1,500,000 investment.

While these figures were necessary to allay the fears of anyone who thought the money might be spent unwisely, the theme the committee stressed most was the necessity of stopping blight and decay before it eats the very heart out of the city. While there are many other slum areas in St. Louis which are just as bad — some of them may even be worse — we had to start somewhere, and the core of the city was the most logical place.

The public saw the logic and told us so at the polls. I believe the big turnout, which exceeded the most optimistic estimates, amounted to a green light to proceed with other developments, and thus to reverse the recent trend toward decay.

St. Louis Will Also Rehabilitate Local Neighborhoods

A COMPREHENSIVE program to appraise the quality of housing and to plan for the rehabilitation of neighborhoods is also under way in St. Louis, going forward with the movement to redevelop downtown portions of the city. A description of the recently completed two-year housing survey, based on the appraisal methods of the American Public Health Association, is contained in the report: "Let's Look at Housing," prepared by the Housing Rehabilitation Project (located at 412 City Hall, St. Louis) in which three official city agencies are participating —the City Plan Commission, the Health Division, and the Division of Building and Inspection.*

Now that the housing facts are available and the extent of the problem known, the planning and execution of the project is to proceed, based on the following essential steps:

1. Selection of neighborhoods which can most benefit from rehabilitation, based on data obtained in the field study.

2. Once a neighborhood is selected, a plan for its improvement will be drawn up and submitted to residents and property owners for suggestions and comment. The plan will then be redrawn and modified to meet the needs of the neighborhood and the desires of its residents. A typical neighborhood replanning study is shown here.

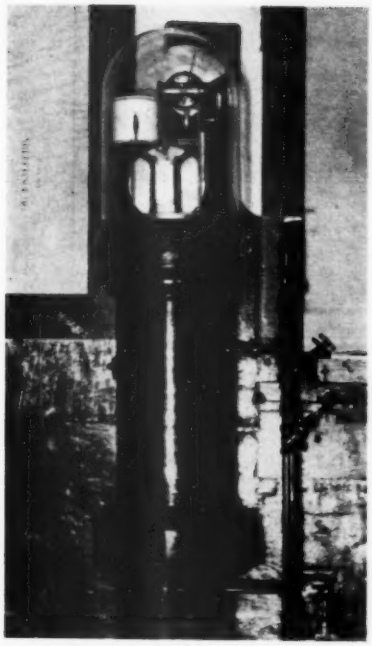
3. Through community organization, and all other ways—even individual contacts—acquaint all owners and occupants of the neighborhood with the improvement plan and secure action on their part.

4. Secure action by such official agencies as will need to participate (streets, playgrounds, schools, etc.)

5. Through enforcement, apply the Minimum Housing Standards Ordinance (enacted in 1948) to bring about the needed cleanup, repair, and renovation of buildings by those individuals who have not done this voluntarily.

ENLARGED OPEN PLAY AREA WITHIN BLOCKS
ELIMINATION OF THROUGH TRAFFIC
REMOVAL OF OBSOLETE STRUCTURES
NEW RESIDENTIAL CONSTRUCTION
REMODEL AND REPAIR NOT YET OBSOLETE STRUCTURES
PARKING FACILITIES AT SHOPPING CENTER
RELOCATION OF GARAGES AND PARKING AREAS
ENLARGED SCHOOL WITH GOOD COMMUNITY CENTER FACILITIES
NEW NEIGHBORHOOD PARK AND PLAYGROUND
NEW SYSTEM OF SERVICE DRIVES
PROPOSED NEIGHBORHOOD

EDITORIAL NOTE: A report on local rehabilitation programs, together with recommendations to cities for the establishment of Neighborhood Conservation Authorities, is contained in *Blueprint for Neighborhood Conservation*, a 40-page booklet published by the National Association of Real Estate Boards. It is available from NAREB at 1737 K St. NW., Washington 6, D. C.



A venerable venturi begins a second cycle of service in Millersburg's water works.

Something Old...

Something New

A pocket-size leak detector and its earphones, carried by City Manager McCabe.

HOW OLD is "old"—when you think of equipment? According to our village of Millersburg (population 2,500, central Ohio), equipment that can serve for many more years is as good as new. This is the practical thinking which prompted our village trustees to purchase "old" equipment, and save the taxpayers $1,000.

The oldster is a Simplex venturi meter, originally purchased by Wooster, Ohio, some forty years ago. The meter gave excellent service and was retired only because of an expansion program that called for increased pipe measurements. The venturi could fit only an 8-inch pipe.

Our water works had long been trying to get along without a measuring instrument, but we recognized the need for such a device. When word came along that Wooster's old venturi was available, we recommended its purchase to the village trustees. They acted upon this suggestion. With minor necessary repairs and alterations, the venturi was soon placed in operation.

The total cost of the meter installation was only $124.45, including the costs of labor, venturi-tube fittings, small valves, copper tubing, and replacement parts. An added $85 for a manometer test outfit raised the total outlay to $304.45, which is about $1,000 less than a new meter would have cost.

We are looking forward to years of satisfactory service from this meter, with a minimum need for maintenance. Moreover, we no longer have to guess at the amounts of water that we pump, but can now accurately gauge the costs of service in terms of 1,000-gallon amounts of water pumped. Every water works, however small, should have a master meter of some type as part of its regular equipment.

C. R. Deitrich
Superintendent of Water Works
Millersburg, Ohio

AFTER SUCCESSFULLY replacing the outdated, manually controlled pumping station with an automatic underground installation,* Park Ridge, Ill., set out to improve its distribution system. Leaks in the system were costing this community of 17,000 almost 10%, a loss of 1,000,000 gallons, of the average daily pumpage.

The conventional leak-detecting equipment, while effective, was cumbersome. The need was for a truly pocket-sized, one-man-operated detector. Remembering the magic of electronics in our automatic plant controls, I consulted with City Attorney H. R. Stoffels who is an electronics expert.

Six months later, the design was complete. The Precision Electronics Company of Franklin Park, a neighboring city in northeastern Illinois, manufactured for us a 1-inch-thick, 4-inch-wide, and 10-inch-long instrument. It is encased in aluminum, and powered by one "B" battery and two flashlight batteries. The apparatus weighs only 2¼ pounds and costs $67.50 each.

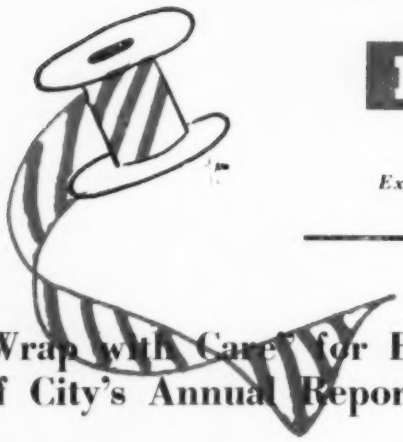
Our Public Works Superintendent John D. Hooper then began an exhaustive series of field tests. The instrument was used in all weather conditions and handled roughly by a series of different operators. Our "baby" proved to be rugged, high-powered, and dependable. The operators used it readily since it was light and could be pocketed in a coat or jacket. We then ordered four more detectors. These are in canvas cases that can be slung over the shoulder.

Our five detectors are now in daily use by the plumbing inspector, meter reader, meter repairmen, water foreman, and one leak-survey man. We have reduced our daily losses by 1,000,000 gallons and are continuing to repair an average of three leaks a day.

DeSoto B. McCabe, Jr.
City Manager
Park Ridge, Ill.

* The American City, August 1951, pages 106-107.

The City Tells Its Story



Municipal Public Relations

Edited by PAN DODD WHEELER

Executive Director, Government Public Relations Association

"Wrap with Care" for Best Reception Of City's Annual Report on 1953

CHRISTMAS WRAPPINGS can make or break a gift. The dull gift may take on interest when distinctively wrapped. And, a handsome gift appears less impressive if packed without imagination. These truths are important to remember now that December 25, just six days from the close of the business year for most cities, is at hand! The format, appearance, and tenor of your city's annual report to the people can "make or break" the data which is the substance of the report.

"Wrappings" for the annual report may be ingenious and spirited. Wrappings may consist of a basic idea, such as Austin, Texas, employed in its report themed "Play Ball." The wrappings may be the pictures which distinguish the Los Angeles 1952 municipal report. They may be a "character" through whom the city's story is reported. Fillmore, Calif., uses this technique in the person of William Scatterboro who reports garrulously around a cracker barrel in the country store. Or the wrappings may be in the look and shape of the annual report—as is the case in the Medford, Mass., financial report, issued in the form of a stock certificate!

Austin Hit a Homer

That Austin report, "Play Ball," is 5 inches by 7 inches in size— like the pocket magazines which the average citizen is accustomed to seeing and buying on the newsstand. Report writers, Dorothy and Terrell Blodgett, have capitalized on the American enthusiasm for baseball and the fact that the year of the report marked the 25th anniversary of the Austin Recreation Department.

The baseball theme was carried out through all 38 black, white, and yellow pages. City Manager W. E. Seaholm tells citizens in his opening letter that the job of "converting money, collected by the city, into services for the citizens, requires as much skill as 'hitting a home run' in any league." The first two pages contain a page-size photograph of a catcher and batter, while copy on the opposite page sets the stage with "Everyone, young and old, loves a baseball game. Peanuts in hand, enthusiastic fans stream into the ball parks throughout the nation to cheer the home team. The same ingredients make a good baseball game anywhere—a well-organized club, skilled and experienced players, and, one more, loyal fans! They add the spark that makes the team want to win."

Elsewhere in the Austin booklet, this idea appears. "Your money supported a team. . . . Whether it's nine skinny kids on a back-yard sandlot or a professional team in a giant stadium, it's the teamwork that wins the game. Your city government can be compared to a successful baseball club. It is a closely-knit organization of 2,000 men and women who work together to provide the services that make the citizen glad he 'came to the ball game' in Austin."

Photographs in the report were selected with skill. Priority was given to pictures with human interest. Words were weighed for the same quality. Facts and figures were included, but simply and "on theme." Police services were reported, for example, in two small pages. One contained a photograph of a well-marked street with traffic in tight rein. The copy reads, "Your money bought protection . . . Austin traffic remained the toughest single problem of the police and transportation departments. There were 560 injury accidents in 1952 involving automobiles, an increase of 53% over the preceding year. Fatalities, however, were reduced sharply from 17 to 9. To guide the ever-increasing number of automobiles on Austin streets, 754 new traffic signs were erected and 129 miles of traffic lines painted." The second page showed a close-up of the communications room and said, "Operators in the Communication Room of the Police Department picked up the telephone over 30,000 times in 1952 to answer calls from Austin citizens. Police officers arrested 6,378 persons in the city's fight against crime." That was all. The copy was easy to read. The pictures helped tell the story. A reader could recognize and respect the obvious understatement in these two pages.

Ingenuity, Not Cost, Important

Still in its "baseball wrappings," the Austin report closes with another full-page picture—a runner rounding third and starting for home. "Your money bought service . . ." the opposite page reports, "There's a feeling of satisfaction in a job well done, whether it's hitting a baseball over the fence or operating a city government. With teamwork and loyalty, the City of Austin in 1952 provided security, protection, and services for the 160,000 citizens of Austin—the conversion of your tax and utility payments into the civic force which is your government."

Just as Christmas wrappings may be expensive or economical, may range from elaborate ribbons to yarn (equally effective if cleverly employed), so annual-report "wrappings" may range from the costly to the very inexpensive. The report may be on enamel paper with text in two colors and photographs finely engraved, or they may be like the Fillmore report — mimeographed on white typing paper with profuse il-

lustrations (pointed and humorous) reproduced from the mimeograph stencil.

The text of Fillmore's report suits the "character" around which the report is built. The copy is salted with the country store philosophy which, one can believe, arouses and holds many citizens through the voluminous 45 pages (8½ inches by 11 inches, single-spaced type too!). City Manager Clarence Arrasmith introduces the storyteller and the report like this, "Perhaps many Fillmore people sometimes wonder what the outside world thinks of the old home town. Course—those who live here know all about the place, both good and not so good . . . it just might be a pious idea to get the viewpoint of some out-of-towner. I could recommend just the man for the job. For thirty years or more, he ran a general store . . . in Texas. Name of William Scatterboro. . . . Let me advise you to look at Fillmore for a while, through Bill's old-fashioned, hornrimmed glasses. You just might learn *something* about the old town. . . ." Drawings, copy, and humorous *attitude* are maintained throughout the report without ever poking fun at the seriousness of the city's business.

New Ways with Traditional Forms

Variety in its "wrappings" has been successful for annual reports in Medford, Mass. City Manager James F. Shurtleff and his administrative assistant, Joseph F. Courtney, write that Medford is a "pioneer in the technique of publishing annual reports as tabloid supplements to the local newspaper." Public response, this pair reports, has been so favorable that the city issues the report in newspaper form every other year. But, on alternate years, "for variety and reader interest," booklet-type reports are published.

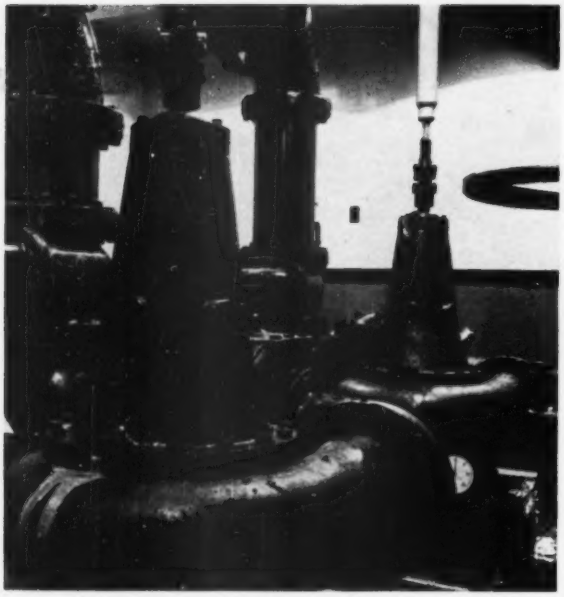
Medford published its 1952-53 report as a newspaper tabloid characterized by large type (the text is set in 10 point on 12), good pictures, and two colors—black and royal blue. In addition to the supplement, Medford distributed a one-page "stock certificate" explaining the city budget and tax matters for all "stockholders" in the city.

Bangor, Maine, has wrapped its current report up as a newspaper supplement using journalistic text, pictures, and layout. The "wrappings" may not be original for other report-readers, but they are for folks in Bangor. The current publication explains that previous reports were in booklet form and when published in that form "only 2,000-3,000 copies can be printed. It is anticipated that this report will reach almost every one of Bangor's 9,000 homes."

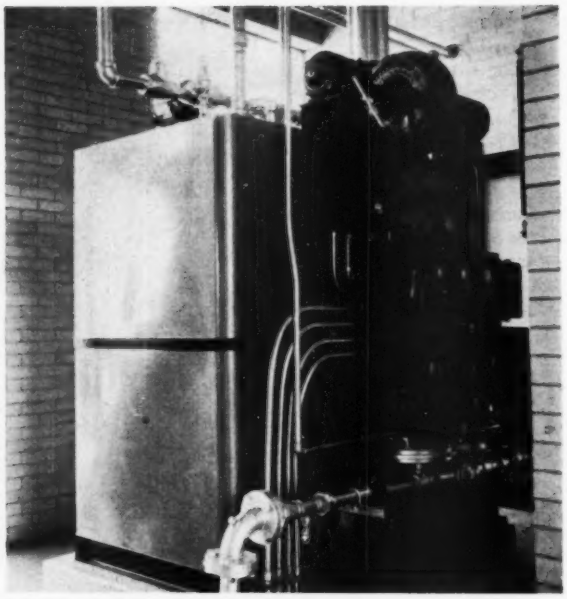
Yuba, Calif., made its first annual report this year . . . and did it on good, coated paper, 17 inches by 22 inches overall and folded into a letter-size brochure. Small, neat photographs in the report were cropped to the shape of the department or service they typified. The picture of the city clerk and his deputy was clipped to the shape of an open account book and that of the water tower to the silhouette of a fire hydrant.

Last month's MPR pages dealt with questions and answers about annual-report content, planning, and preparation of materials. The basic data can be enhanced in final report form with the proper "wrappings." The report forms described here, coupled with the spirit of the holiday season, may give you some ideas for an appealing, well-wrapped 1953 municipal report.

Berkeley, Calif., got its handsome "What's the Score?" (1952-53 report) here at deadline. A baseball theme, clever verse, and the drawing (top left), are features. Austin's "Play Ball" (at lower left) is described in detail on these pages. "Bill Scatterboro" (upper right) is the city story-teller for Fillmore, Calif. Striking covers for the Los Angeles and Medford, Mass., financial report (lower right, below Fillmore's report) made fine wrappings.



Vertically mounted centrifugal pumps lift the sewage to the primary settling tanks. One pump is in constant operation.



The heat exchanger puts the incoming sludge at optimum temperature for good digestion, and provides heat for the plant.

Lititz Needed No Compulsion

. . . to build a new sewer system and treatment plant, because it recognized the need for such a sanitation improvement

By ORVILLE F. OVER
Borough Manager
Lititz, Pa.

NO INJUNCTION, lawsuits, or state directives were needed to prompt Lititz, a borough in central Pennsylvania, to build a sewer system or sewage-treatment plant. When the people decided that the time for improved sanitation had come, they took appropriate action under their own power.

Lititz, with a population of 5,600, has evidenced a steady annual growth that has not been upset by influxes that have made for difficult planning in other municipalities. It had been the practice of the city to dispose of sanitary sewage by means of septic tanks. Since the soil is a tight clay, the septic-tank effluent had to drain away through holes bored in the limestone rock. Because the borough's water comes from wells drilled into these limestone formations, this type of disposal was a constant pollution hazard.

With typical Pennsylvania Dutch habits of thriftiness and cleanliness, the people decided, a few years ago, that a well-constructed sewer system that would bring the wastes to an efficiently designed treatment plant would do away with the health danger. They called on Albright & Friel, Inc., Philadelphia consulting engineers, to design and supervise the necessary construction. The plant and sewer system that have been built anticipate an ultimate population rise

The digester operating building stands between a pair of digesters. In the background (right) is the 66-foot-diameter trickling filter.

With characteristic Pennsylvania Dutch neatness, the plant buildings are compact and the grounds are trim.

of 7,500, or the need for a flow of 1.15 mgd (million gallons daily).

The sewer system consists of vitrified clay pipe that varies from 8 to 30 inches in diameter. Each section of pipe is joined by a roll-on rubber ring that assures water tightness. Portions of the line that had to be laid in water were placed in a concrete cradle.

The sewage-treatment works is of the high-rate type of trickling filter, employing double recirculation with two filters in series. Each recirculation cycle is designed on a one-flow to one-circulation basis.

The sewage is discharged through a Chicago Pump Company comminutor with the usual screen bypass. It then flows to a wet well where one of the two Chicago centrifugal pumps, also acting as recirculating pumps, lift it to the primary settling tanks. One of these pumps remains in operation constantly. The other operates as a standby, but will operate intermittently if needed. Both are rated at 1,625 gpm (gallons per minute).

The incoming sewage, mixed with recirculated flow, passes into two rectangular settling basins. Each is 65 feet long, 15 feet wide, and has a 10-foot water depth. Link-Belt continuous collectors remove the sludge.

The settling tank effluent then passes to a primary trickling filter, 66 feet in diameter, using a Carter rotary distributor which operates continuously. A float-controlled butterfly valve directs a portion of the effluent back to the raw-sewage wet well where it automatically makes up the difference between raw-sewage flow rate and pump capacity.

Second Cycle of Operation

The remainder of the primary filter effluent passes to a second cycle. This cycle includes a pair of circulating pumps that are rated at 1,625 gpm each; a secondary trickling filter similar in size and equipment to the primary filter; and a pair of secondary settling tanks, 80 feet long, 20 feet wide, and with a water depth of 10 feet.

These tanks are also equipped with a Link-Belt sludge-scraping mechanism. The recirculation ratio of 1:1 is maintained in the second cycle. The effluent from the second cycle passes through a chlorine contact tank, 20 feet wide, 26 feet long, with about a 5-foot water depth. The sewage is metered at this point only, affording a measurement which can be used to determine the chlorine dosage.

The sludge is removed from the primary settling tanks and secondary settling tanks by two Chicago Pump Company sludge pumps rated at 200 gpm which transfer the sludge to a pair of digesters, each 30 feet in diameter with a 27-foot effective depth. Each is equipped with a Pacific Flush Tank floating cover. Before entering the tank, the sludge passes through a Pacific Flush Tank heat exchanger that brings the sludge to its optimum temperature for fast, efficient digestion. This heat exchanger uses either digester gas or oil for fuel, and is able to provide heat for the digester building as well as for the sludge.

After digestion, the sludge is transferred by two Carter plunger-type pumps to drying beds. These measure approximately 125 feet by 60 feet and are covered with a Metropolitan Greenhouse Company glass enclosure.

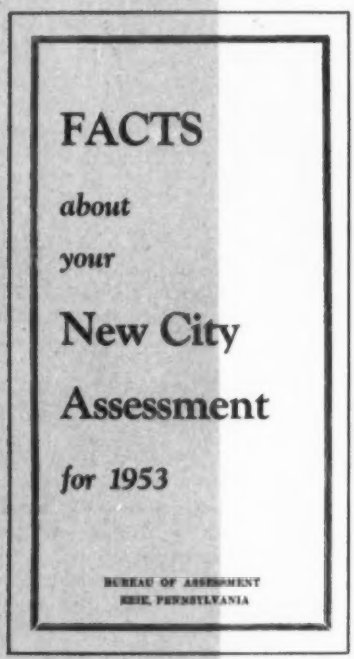
Effectiveness of Treatment

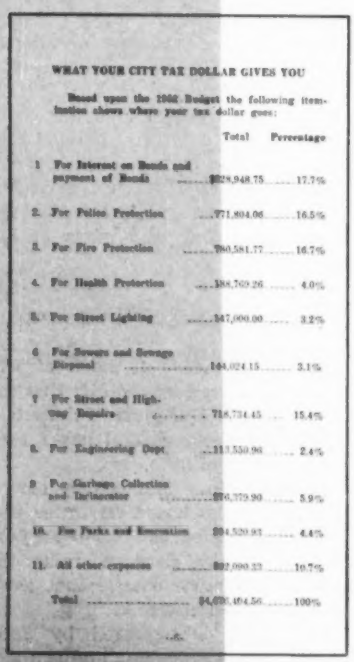
The effectiveness of the treatment can be measured by the fact that the sewage has 99% or more of the settleable solids removed and has a relative stability of 99%.

The plant was financed by sewer-service charges based on water use. The borough pledges $17,500 per year from the general fund and raises the rest by a service charge that averages about $48 a family.

The plant is operated by John Bowder, superintendent, and is under the general supervision of the author.

Erie's Revaluation Wins Public Consent





WHAT YOUR CITY TAX DOLLAR GIVES YOU

Based upon the 1952 Budget the following itemization shows where your tax dollar goes:

	Total	Percentage
1. For Interest on Bonds and payment of Bonds	$628,948.75	17.7%
2. For Police Protection	771,804.06	16.5%
3. For Fire Protection	780,581.77	16.7%
4. For Health Protection	188,769.26	4.0%
5. For Street Lighting	147,000.00	3.2%
6. For Sewers and Sewage Disposal	144,024.15	3.1%
7. For Street and Highway Repairs	718,734.45	15.4%
8. For Engineering Dept.	113,550.96	2.4%
9. For Garbage Collection and Incinerator	276,372.90	5.9%
10. For Parks and Recreation	204,520.93	4.4%
11. All other expenses	502,000.23	10.7%
Total	$4,676,454.56	100%

ERIE'S RECENT REVALUATION PROGRAM from a 1932 base to a 1952 base raised the assessment roles from $165,000,000 to $380,000,000, an increase to 2.3 times. This substantial change was accomplished without undue public resentment, after failures of similar efforts in previous years, because of a systematic approach to the job, linked with careful efforts to keep both the public and city officials and councilmen informed about the project and the need for it.

A major revaluation program was attempted in 1934, a depression year, but failed because of public resentment. It did result, however, in building up a modern system of property record cards and maps and a staff under the direction of the newly appointed city assessor at that time, Harry A. Holmes.

A new factor entered the picture in 1949 when steps were taken to have the city assess machinery in industrial plants as a part of the real estate values. Appeals from this reassessment of industrial properties and a resulting court case brought forth criticism of the city for failure to use a uniform method of assessment on all classes of property.

Appraisal Firm Hired

After considerable discussion and delay, the city contracted with the appraisal firm of Cole, Layer, Trumble Company, for a complete appraisal of all properties on a 1941 valuation basis. This work was started in 1951, and the plan was to complete it for the triennial assessment required by the State of Pennsylvania (but not complied with by Erie in previous years) in 1953.

Within the first month of my appointment the Solicitor's office completed a study of court opinions and expressed grave concern over the terms of the contract with Cole, Layer, Trumble Company, which called for an appraisal using 1941 building cost as a valuation base instead of "actual value" as required by law.

A conference was arranged with representatives of the appraisal firm to discuss ways and means to correct this procedure. It was found that their work, while progressing according to schedule, was not advanced to a point where a change in the standard of valuation was either impractical or too expensive. This conference also brought to light another defect: that the use of a 1952 actual value base, as required by law, would produce more equitable values for all classes of property and would not penalize industry as was the case in using a 1941 value basis.

Construction costs between 1941 and 1952 showed a rise of about 150% in that period, whereas the cost of machinery items varied from 25% to 100%, with 75% being a high average for the same period.

"Actual Value" Decided Upon as Base

It was obvious from this comparison that to assure all classes of property a fair deal, there was no course left except to use the "actual value" base as required by law, and the appraisal firm was directed to alter its program.

At this point we had to consider another phase of our program. Should we accept the values supplied for each property by the appraisal firm or should we review their work in each case and establish the final value as our own?

Legal opinion was divided on this matter, so the decision was made to review the appraisal of each parcel as supplied and either accept same as sumbitted or alter by an upward or downward revision as considered advisable by our staff members. Our aim was to make the assessment stand up under every test of the law, as to the value, as to the method

By CLIFFORD A. ZILCH
Chief City Assessor
Bureau of Assessment and Tax Revision
City of Erie, Pa.

employed, and finally as to equalization.

With this in mind we organized our force to provide a quick review of every parcel by a staff member. This was accomplished by a "windshield" check-up with the property record cards as supplied serving as a guide. Of necessity this important phase of the work was limited chiefly to the Assessor, the Assistant Assessor and two or three part-time real estate men familiar with current values. To review 38,000 parcels in less than nine months proved to be a difficult job. About 28,000 parcels were encumbered with buildings; the other 10,000 parcels are indexed as individual lots.

Deciding Percentage of Value

About the first of July our work had progressed to a point where it was considered advisable to confer with City Council and solicitors for the purpose of establishing the percentage of value to be used for the final assessment.

Our preliminary figures indicated that the new assessment would probably amount to about $375,000,000, in contrast to the prevailing assessment of $165,000,000.

Arguments pro and con on the question of a 100% assessment were advanced by the Assessor. The City Solicitor and the Assessor were in agreement that a 100% assessment presented the taxpayer with the only fair and intelligent test of his valuation; that the use of a lower percentage was the means of hiding errors and tended to confuse the taxpayer; that while it gave council a high bonding power its misuse was a subject that would prompt the taxpayer to take a more active interest in government. Finally, the objection of what would happen if a decline in value developed, was overcome by the reference to the rights of council to order a revision in any year prior to May 1. The decision of council was to use a 100% estimate of the Assessor's opinion of "actual value."

With these important decisions made, the work continued and, except for a few industrial plants, the assessment notices covering 38,000 parcels were placed in the mail on November 30, 1952. We retired that night wondering what the ensuing 30-day appeal period would bring.

How did we prepare the public for the shock they were about to receive? We tried to analyze the reactions of taxpayers when they would receive a notice of assessment ranging from two to three times higher than previously. Obviously, every means of communication must be used and used wisely.

The newspapers were our greatest help. The daily story of some phase of our work helped to cushion the shock. The change from 1934 to 1952 value was a frequent item of news; the use of "actual value" — 100% value of current market conditions being the basis — were among subjects given space daily in both local papers.

We prepared a pamphlet: "Facts About Your 1953 Assessment," which was mailed with each assessment notice. This explained "actual value," 100% value; change of millage rates; need for modernizing our valuations; the intention to go up and down with the market as changes developed; the fact that inequalities of the old assessment meant some would actually save taxes, others would pay more, and still others would find little or no change in their final tax bill. We explained thoroughly the procedure to be followed in event a taxpayer desired to appeal. There is no question but that this helped those who were inclined to be reasonable and fair.

The Assessor appeared before a dozen or more service clubs and trade associations to explain the program in detail and to answer all questions from interested listeners. This proved of great value, and even to this day an occasional call to speak before a group is received. The most recent was in mid-October before the Erie Chapter of Cost Accountants.

TV and Radio Also Used

The advantage of television and radio were not overlooked. Free time was supplied by our local TV Station, WICU, for two morning spots in the months prior to the release of our valuations. Two late evening spots were given free as a public service in the period immediately following release, and the comments received indicated that this publicity was an invaluable aid.

Free time on three occasions was provided by two radio stations early in the period after release of our valuations. These were question-and-answer periods at which the City Solicitor, the Assessor, and the station announcer were the panel members.

The time for filing appeals ended on December 31, 1952. By this time both the School Board and City Council had announced a reduction in the millage rate and taxpayers had an opportunity to determine the exact effect on the change.

The School Board reduced its millage from 17½ mills to 8 mills. This actually produced a higher revenue and meant a slight over-all increase in taxes.

The City Council did the opposite in reducing its millage rate from 16 mills to 6½ mills. This produced less tax revenue and meant that a taxpayer whose new assessment was in the range of the average increase of 2.3 times greater was receiving a slight decrease.

The total tax revenue for the City and School District amounted to approximately the same as in the previous year.

Public Hearings on the Appeals

The period in which to file appeals ended on December 31, 1952. Of the 38,000 parcels slightly over 3,200 appeals were filed and about 100 of these were later withdrawn. Public hearings were held and an opportunity to be heard by the Board of Revision was granted every taxpayer who so desired. Usually, we arranged our meetings to accommodate from 50 to 75 appealed cases and about 50% of the people presented their cases.

These meetings continued on a five-day week two hours per day schedule and lasted until May. Except for two or three occasions, the meetings were very orderly.

In analyzing the appeals it was found that many were of a protective nature. While many had valid claims, others were without any basis for relief; still others were looking for a chance to be in on any "gravy train" that might develop.

After the Board completed its hearings, the decision reached was to request the Assessors' Office to review all appealed cases and make recommendations to the Board. This program is under way and it is expected that 40% of the cases will be disposed of before January 1, 1954.

Disaster Insurance for a Water Supply

A supplementary treatment plant reduces operating costs and provides a source of water in case of disaster

By ROY H. RITTER, *Whitman, Requardt & Associates, Consulting Engineers, Baltimore, Md.*

BALTIMORE is providing itself with a special kind of disaster insurance which will safeguard the city's water supply should disaster visit its present Montebello filter plant. The new Ashburton filter plant is designed to supply practically the entire city under reasonable water-demand conditions.

The new system supplements the 148 mgd (million gallons daily) that the city has been able to get from its two reservoirs on Gunpowder Falls. This estimate is the safe yield, based on the 1930 to 1934 drought—a yield prominent on the deficit side of the supply ledger. In 1951, water use averaged more than 200 mgd and reached a maximum of 225 mgd.

To Increase Water Supply

To make up this deficiency, Baltimore decided, more than 10 years ago, that it would develop the north branch of the Patapsco River to secure an additional supply of 94 mgd. This project required a new dam and transmission line, and more treatment facilities. As a result of this study, water officials decided to build the Ashburton filtration plant which is able to receive 120 mgd. A 10-foot-diameter tunnel extends 12.5 miles from the new filter plant site to the new Liberty Dam and Reservoir. This 160-foot-high structure can impound 43,000,000,000 gallons of water. A smaller, 7-foot-diameter tunnel extends for 4.2 miles to connect the new Ashburton plant and the older Montebello works. With the yield of the new treatment facility, the city will have available a safe supply of 242 mgd, and a strong flexible operating arrangement.

By building the plants separately, the designers were able to capitalize on differences in elevation that aid substantially in lowering operating costs. The present Montebello filter plant can now furnish water by gravity to the first or low zone of the city, where about 57% of the water is used. The new plant will service the second zone, also by gravity, and make it possible to eliminate the use of two pumping stations, reducing operating costs by $250,000 per year. Pumps still will have to deliver the water to the higher zones, but the pumping will not have to be so extensive.

The upper 40 feet of the water impounded by the Liberty Dam will flow to the Ashburton plant without the need for pumping. This represents 28,000,000,000 gallons, or 65% of the total storage. A low-lift pumping station makes the entire impounded volume available, giving the plant its rated safe yield of 94 mgd.

The site selected also makes it possible to utilize the filtered-water reservoir, used normally for storage at the second zone level, as the plant's clear well. This reservoir, known as Lake Ashburton, when operating in this capacity, will hold 220,000,000 gallons.

Plant "Tailored" to Area

The design of the plant has been tailored to fit the triangular area that was conveniently available for this improvement. The raw water enters the area through a control building where four 30-inch throttling valves are able to reduce the pressure. This building is protected by a 7-foot-diameter surge tower whose top extends for 15 feet above the crest of the dam. A 10-foot-by-5-foot venturi meter will measure the water as it enters. The meter has an accurate range of 24 to 240 mgd.

Treatment Procedure

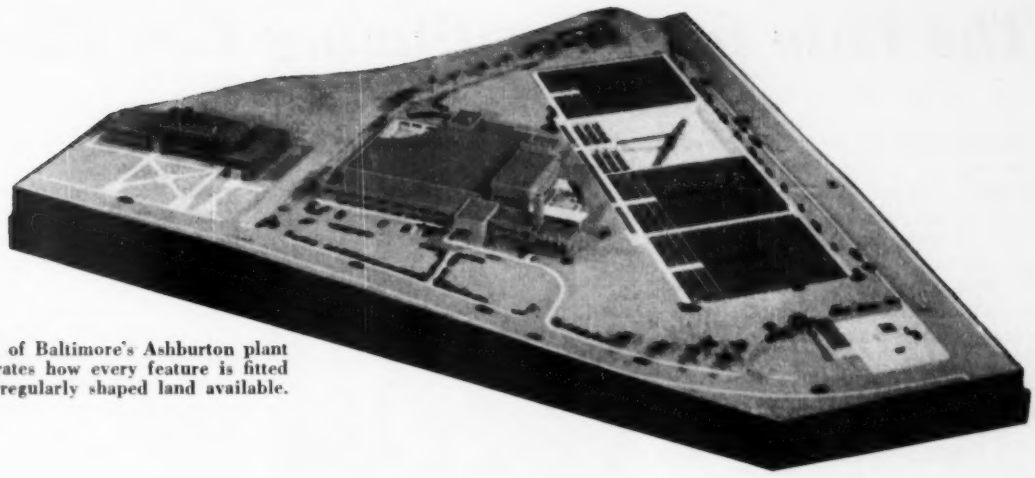
The first step in the treatment of the water will be prechlorination. At the chemical buildings, ton cylinders will supply three chlorine evaporators and four chlorinators with this chemical. Normally, two chlorinators will be used for the prechlorination treatment. The remaining two will supply postchlorination as it is needed.

The water then will pass into the mixing basin, after receiving an application of alum. This basin provides 10 minutes of detention and is baffled to provide twenty 180° turns. Incidentally, the alum solution is manufactured by the city.

Since the cost of this plant was amortized many years ago, the city is able to realize a saving of a little over $10 per ton of alum used. The alum is received at 20% solution, diluted to 2%, and applied through Rotometers.

A feeder will apply activated carbon for taste and odor control. The Baltimore plant also participates in the dental-health program by feeding fluorides to the water. The chemical supplying the fluoride content is hydrofluosilicic acid which is stored in the basement of the chemical building.

The chemically treated water then passes from the mixing basin to four flocculating basins. Each of these measures 170 feet wide, 50 feet long, and 15 feet deep. The basins



A model of Baltimore's Ashburton plant demonstrates how every feature is fitted to the irregularly shaped land available.

provide 45 minutes of detention.

The water then proceeds to four sedimentation basins, each 180 feet square with 16 feet of side-water depth. These have been designed to provide 3.6 hours of detention and an overflow rate of 930 gallons per square foot per day at the nominal capacity of 30 mgd.

The settled water then flows through flumes and conduits to 20 filters. Careful hydraulic design has kept head losses to a minimum. The water level on the filters will be only 6 inches lower than it is on the sedimentation basins.

The 20 filters are grouped, five on each side of two galleries. Each filter has a nominal capacity of 6 mgd at the conventional design rate of 2 gallons per square foot per minute. However, the rate controllers will have a capacity of 12 mgd, so that each filter may be operated at a rate as high as 4 gallons per square foot per minute.

Adjustments of Capacities

This arrangement gives the plant the ability to operate at 160 mgd, or 33% over the nominal capacity. With only minor adjustments of baffles and gates, capacity can be stepped up to more than 200 mgd. In view of the fact that the peak days in Baltimore are only about 25% greater than the yearly average, and the filtered-water reservoir, Lake Ashburton, provides 220,000,000 gallons for storage, only a major disaster would make it necessary for this plant to operate at these excessive amounts.

The filters use an underdrain system of vitrified clay tile. Over this has been placed 6 inches of gravel, 4 inches of torpedo sand, and 24 inches of filter sand of 0.54 millimeters effective size. The water level on the filters can fluctuate over a range of 2 feet in consonance with a similar 2-foot fluctuation on the sedimentation basins.

Water Diversion

Since the need may exist to bypass water during a major disaster, provisions have been made so that the raw water from the 10-foot tunnel could be diverted at the shaft outside the plant building to the 7-foot distribution tunnel. The diversion is accomplished by two valves normally separated by an air gap. A second bypass can be supplied by diverting the chlorinated settled water to the 7-foot distribution meters by means of sluice gates normally separated by an air gap. These air gaps can be drained and inspected periodically.

One-fourth of the area under the filters will serve to collect the unlimed, filtered water and conduct it to the lime portion of the chemical building. Pebble lime will be delivered to the plant by a city-owned truck equipped with pneumatic unloading facilities. This is the same type of truck that is now being used for this purpose at the Montebello plant.

Pneumatic Unloading

A pneumatic system will place the pebble lime in four overhead tanks, each with a capacity of 50 tons. The lime will be fed through slakers to the unlimed, filtered water channel directly below, so that lime slurry will not have to be transported through pipes. The limed water will flow to the clear well beneath the remaining area of the filters.

A detention period of 20 minutes and three 180° turns, with several restrictions to flow, will induce good mixing of the lime solution with the water. The water will pass through two 7-foot by 3½-foot finished-water venturi meters. One of these will be connected to the existing 7-foot tunnel of the distribution system that supplies the eastern part of the second zone and its 36,000,000-gallon reservoir. This 4-mile tunnel will be connected with the existing distribution system through three separate connections.

Second Detention Period

The other venturi will connect the 3,000-foot length of 7-foot pipe which will discharge approximately half of the plant capacity at the extreme far end of the 220,000,000-gallon Lake Ashburton Reservoir. Since the detention here will be between four and six days, added chlorine can be applied if needed.

The plans for the Ashburton filtration plant were prepared under the direction of Paul L. Holland, director of the Department of Public Works, and Joseph S. Strohmeyer, water engineer for the Bureau of Water Supply.

The design and details of the plant are the results of the combined efforts of Bernard L. Werner, deputy water engineer, Edward S. Hopkins, principal associate engineer in charge of the Division of Water Treatment, and Whitman Requardt & Associates, consulting engineers.

The Case for Microfilming City Records

By JOHN G. KRIEG
City Purchasing Agent
Cincinnati, Ohio

ALTHOUGH the majority of items required by a municipality are purchased regularly, each year's requirements include new products, new demands, and consequently new purchasing problems, which are brought about by expansion of municipal services to the public or by changes in internal operational procedures. Let us consider the feasibility and desirability of microfilming city records.

Microfilming in Cincinnati was first suggested in connection with the aged birth and death records of the Board of Health, which had deteriorated to the point where reproduction by some method was essential to continued availability of vital information. W. R. Kellogg, City Manager, requested the Purchasing Agent to make a complete study of microfilming and to report as soon as practical on its adapability and cost as a means of reproducing or protecting various important city records. The following factors were considered:

1. The adaptability of microfilming as a means of duplicating or protecting important documents and records and the safety and permanence of such film records.
2. Cost of microfilming in relation to other means of reproduction or storage of records.
3. The volume, size, and nature of records justifying protection.
4. Acceptance of microfilmed records as legal evidence by courts.
5. The types and cost of microfilming equipment available and whether capable of handling the various sizes and types of records which would most certainly be included if a comprehensive reproduction program were recommended and approved.
6. Space and equipment now being used for record storage that would be made available for other purposes or, in the case of equipment, sold.

Other Factors

In addition to the above, it was recognized that during the progress of this study it would be necessary to be on the alert for other factors which would be worthy of consideration in arriving at a final decision.

A perusal of trade and news magazine reports established that microfilming offered a logical means of reproducing city records either for reference or protection. At the same time, it became apparent that to assure maximum accessibility for reference certain problems in relation to arranging and indexing material would have to be worked out for individual agencies taking into consideration their operational procedures.

Early in this study, after evaluating the cost of labor required for the preparation and processing, and the cost of film and storage files, it became apparent that microfilming was by no means an inexpensive process and would not be as economical as standard methods of storage of old records, if these initial costs were the only considerations involved. It became evident, too, that a favorable recommendation would hinge upon determinations in regard to other significant factors involved.

The departments were requested to furnish information as to the nature, type, sizes, and volume of records, both accumulated and annual, which they felt to be of sufficient importance to microfilm, and to state why. Were these records in loose or bound form? Once microfilmed, could the originals be destroyed? Were duplicate films essential for all or any part of these records and why? What storage space and equipment could be made available for other purposes? How often were the accumulated records referred to?

Our analysis of this information indicated that many advantages would accrue to the city through adoption of a microfilming program, and these were set forth in our final report.

A systematic practice of microfilming and then destroying old records would release considerable record-storage space. Most departments would store the processed films in their operating offices for greater reference convenience and for better protection. The storage of microfilmed material in this manner, with indexing based on their particular manner of usage, should save considerable employee time in locating required reference material over the present system of going to fourth-floor storage rooms and searching through old files not always maintained in proper order. Also, once a record was microfilmed, it would be practically impossible for part of it to be lost or misfiled, altered, or removed from the files.

Systematic microfilming would provide a continuous and complete year-by-year record of the activities of the various agencies, as compared with the now incomplete record kept under the present system in which files are discarded at the expiration of regulatory retention periods, or as lack of space demands. This complete record could provide valuable information for such purposes as reorganizing an existing agency, establishing new agencies, reviewing or revising existing policies or procedures, and planning or establishing new offices or quarters. The problem of transferring records from one location to another would be simplified materially by microfilming.

A Safety Measure Also

In addition to saving space, microfilming could be employed as a means of preserving (by duplication) documents which, if destroyed by some catastrophe, could be duplicated only by painstaking research and at enormous cost, and in some instances could not be replaced. Duplicate records stored at locations other than those of the original records would provide an added factor of safety.

Supplemental information on various types and makes of microfilming equipment was gathered. Study of methods of operation and ability to copy the various sizes and types of records, together with the estimated costs of such equipment, was made. We follow a regular practice of perusing various trade publications for new sources for, or additional information on, materials and equipment now in use or considered of future interest, to build up our cata-

log and product reference files. We have found THE AMERICAN CITY magazine Manufacturers Catalog Section to be a very good source.

In considering how best to carry out the operation of such a program, if adopted, it was recommended that the filming and reproducing operations be centralized in the present Reproduction Division of the Department of Purchasing, along with the other types of reproduction services, and in this way hold to a minimum the equipment and personnel costs involved. On this basis, a listing of the anticipated equipment and personnel requirements and the estimated initial and annual costs of such a program were reported.

The recommendations of this report were adopted and equipment, purchased on the basis of performance requirements, was installed in the latter part of 1952. We are now in the process of microfilming the Board of Health Vital Statistics records dating back to 1909, and providing them with both a negative film for protection purposes and a positive film for day-to-day use.

Adding-Machine Billing for the Town Utility

By PAUL COOPER
Water Superintendent
Union City, Pa.

THE WATER DEPARTMENT of the Borough of Union City, Pa. (population 3,900), writes monthly water and sewer bills on a standard wide-carriage National adding machine. This method is recommended as the closest approach to a regulation bookkeeping-machine operation and is particularly suited to the conditions and needs of a small municipality.

The bills were formerly written by hand. Now we use a three-part form consisting of a government postal card and two paper copies, each backed by spot carbon and gummed lightly to the card.

The present meter reading is posted on the first line by use of the "Add" bar. The previous reading is posted on the second line, by using the "Subtract" bar. Now, instead of *clearing* the difference, or the amount consumed on the "Consumed" line, the amount consumed is picked up from the meter reader's book and subtracted. Then, if the adding machine "dials" read zero, both the machine pickups and the meter book are proved correct. This is a simple method of proving the accuracy of every bill written.

The next step is to enter the amount of water charge and then the amount of the sewer charge on their respective lines, and a total is taken in the "Total Due" column. If there is a penalty to be added, a sub-total (instead of a total) is taken in the Total Due column, the penalty is added, and the total is then taken in the Total column. All these columns are shown in the illustration.

Operation is as simple as running an adding machine—in fact, it *is* a National adding machine, of a very special kind.

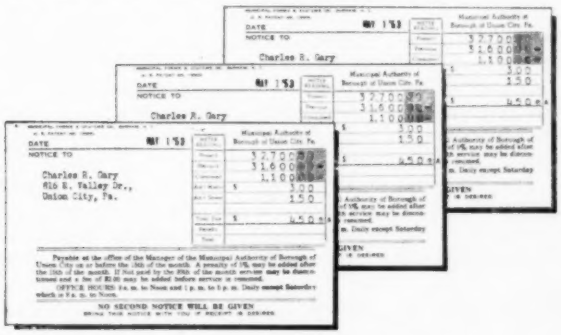
The Union City Water Authority found, in the National adding-machin system, a check on the accuracy of the meter books, the elimination of inaccurate bills, and proof of the total amount billed at the end of the run. There was also a substantial saving of time, a reduction in supplies needed, and a neatness of machine-printed bills that induced customer confidence in the new system. The advantages also added up to the elimination of one clerk—a saving of $150 a month.

The postal card, of course, is mailed to the customer as his bill. One copy is filed alphabetically as the Accounts Receivable ledger. The other copy is used for audit purposes.

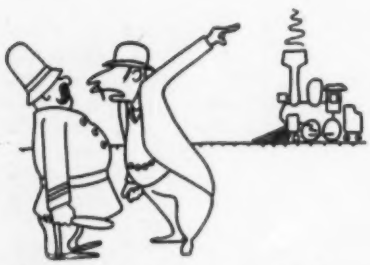
The adding machine is used, also, for the recording of payments. All receipts for water are accumulated in the "A" total, and sewer receipts are recorded in total "B." When the post-card bill is presented for payment, it is stamped "Paid" and returned to the customer. When mail payments are received, the accounts receivable copy is removed from the file and is stamped "Paid."

The author and his adding machine, which also writes the monthly bills for Union City water and sewer departments.

Post-card bill and two paper copies are created simultaneously by the adding-posting machine, which accumulates the total of all charges and proves them.



Smoke Abatement Strategy



"Our concept of a program for the enforcement of air-pollution control has also advanced from the days when it was considered a simple police problem."

LOOKING BACK to evaluate recent progress in smoke control may be a discouraging experience. Yet comparison indicates that we are making faster advances today than have been marked up in a total of seven centuries. The earliest recorded efforts of civilized society to rid itself of the air-pollution nuisance dates back to 1257 when Queen Eleanor, wife of King Henry III of England, moved from Nottingham to Tutbury Castle because of the "smoke and unendurable vapors therefrom." In 1273, the English Parliament passed a law prohibiting the use of "sea (bituminous) coal."

In more modern times, air-pollution control still had to struggle for recognition as a community problem. In 1864, a Mr. Whalen of St. Louis sued his neighbor Mr. Keith for damages caused by a smoking chimney. Although Mr. Keith carried the case to the Missouri Supreme Court, he nevertheless had to pay Mr. Whalen $50 for the damage he had caused.

Fortunately, the need for control of air pollution now has more widespread recognition. More than 250 municipalities, five counties, and several states have adopted some form of legislation for the institution and enforcement of smoke abatement. In the New York area, interstate control of air pollution is being advocated. In the Detroit area, an international control commission is functioning.

Our concept of a program for the enforcement of air-pollution control has also advanced from the days when it was considered to be a simple police problem. The belief was that anyone could see a smoking chimney. Therefore, the qualifications for inspectors were very lax. Today, the program for control begins with the services and special knowledge of mechanical and chemical engineers. More particularly, the job calls for combustion engineers, experienced in burning various fuels as well as refuse, engineers with wide experience in power and heating plants, and chemical engineers trained in the control of fumes, odors, and noxious gases.

However, even before the technical portion of the work can function, the human factor of the program must be initiated, and given every opportunity to express itself constructively.

On this level, the prime requisite is the creation of a citizens' committee for air-pollution control. Civic leaders, individuals who have headed Community Chest and Red Cross drives and defense bond campaigns, leaders of women's clubs, service clubs, and labor unions, as well as other prominent participants in community activities, should be induced to serve.

The objective of the citizens' committee should be to spread comprehensive information to the entire community. Newspaper publicity is essential. All organizations that publish bulletins for their members should be supplied with pertinent information. A speaker's bureau should be organized, prepared to give talks to service clubs, business groups, professional societies, political clubs, labor union meetings, and all other organizations where arrangements can be made. Radio and television programs should be used whenever possible. Most important of all, the magnitude of the control job should be stressed to dispel the fallacy that passing a law is all that is required.

The third step in initiating the program, though not always essential, but certainly most desirable, is to make an air-pollution survey of the community. This will include: kinds and amounts of fuels used, dustfall study; air sampling, determination of average smoke densities, meteorological data, averages of various pollutants.

Need for Resurveys

Periodic resurveys also are necessary annually, or at least biennially. Disinterested parties, such as a local university or a technical school, a research institute, or a consulting engineer, can do this work most convincingly. Many people have no confidence in progress reports made by an air-pollution-control bureau, particularly those people who happen to be located near a bad offender.

After the educational program and survey is complete, the need for control ordinances arises. This legisla-

A workable program of air-pollution control has to be planned so that it will enlist public support, have clearly prepared specifications, and be staffed by an adequate supply of qualified inspectors

By WILLIAM G. CHRISTY,* *Consulting Engineer, New York, N. Y.*

tion should embrace the following points:

1. Definitions should be technically correct, yet expressed in simple language and all-inclusive.

2. Qualifications of the director. If he is not to be under civil service, he should be given tenure of office.

3. Set-up of the bureau; authorization for appointing personnel; definition of powers and duties.

4. Provision of advisory and appeals board. The advisory board approves detailed regulations and acts in an advisory capacity to the bureau. The appeals board hears appeals from decisions of the director. The two boards may be combined. The members should be engineers, preferably mechanical or chemical engineers, usually appointed by the mayor for three to five years, with staggered terms.

5. Limits of smoke emissions allowed must be defined. Usually, definite time limitations on smoke of different shades are established, and maximum dust concentrations allowed are specified. Fumes, odors, and noxious gases may be put on a nuisance basis. While any ordinance should be thoroughly enforced, it should not be too strict at first. After some experience, the ordinance may well be revised and tightened up.

6. Requirements for filing plans and specifications for construction, reconstruction, or alteration of fuel and refuse-burning plants, and for installation or alteration of any equipment which is a potential source of air pollution. There should be no exceptions and every possible source of air pollution should be covered. This is part of a long-range program and one of the most important requirements. Authorization for filing fees should be included.

7. Procedure for reference to the appeals board should outline the method of handling and fees to be charged.

8. Outline of the sealing procedure which would give the chief of the bureau the power to seal any equipment after repeated violations and refusal to make corrections.

9. The chief of the bureau should be given the power to require owners to make tests of emissions and report them to the bureau which should be authorized to have observers present at the tests.

10. Rules and regulations give the chief the power, with the consent and advice of the advisory board, to adopt and publish detailed rules and regulations that are separate from the ordinance. These govern the operation of the bureau in its enforcement practice and assist owners, manufacturers, and contractors in planning their work.

11. All employees of the bureau should have the right of entry to any premise at reasonable hours upon proper identification.

12. Penalties for violations should be outlined.

The first order of business for the new bureau is to make good citizens of its own fuel-burning and refuse-incineration plants. The work will be hastened if the city sets a good example.

One must not be discouraged if the public becomes impatient and expects results too quickly. Most people do not realize the magnitude of the job. Nevertheless, it should be thought of in the same terms as the provision of an ample supply of pure water, of keeping the streets cleaned and well paved, of providing an adequate sewage system, and other municipal services.

The work, of course, requires men and tools; and both cost money. Two years ago, I sent a questionnaire to 15 or 20 of the larger cities. The replies indicated that annual appropriations varied from 7 cents to more than 20 cents per capita. Salt Lake City stood at the top with about 21 cents per capita. New York and Philadelphia ranked low, with only about 2½ cents per capita.

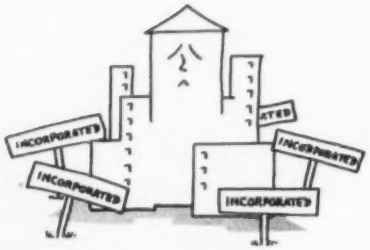
To Obtain the Best Results

For best results, an inspector should spend about 75% of his time on patrol work, observing stacks and other sources of pollution. The rest of the time can be devoted to investigating complaints.

Operating engineers make good inspectors, particularly when they have had practical experience with fuel and refuse-burning plants and equipment. They must be persistent, diplomatic, able to talk to a fireman, plant manager, or an indignant complainant. Politics, of the sort that rules out real ability, should play no part in his appointment.

No small effort, no temporary effort, no half-hearted effort will clear the pollution from the atmosphere. Never conduct a "campaign." Conduct, rather, a continuing war. Every city can have a cleaner atmosphere if it will pay the price and make the effort. Both are good investments.

* Mr. Christy is the former director of the Bureau of Smoke Control in New York City and Hudson County, N. J.

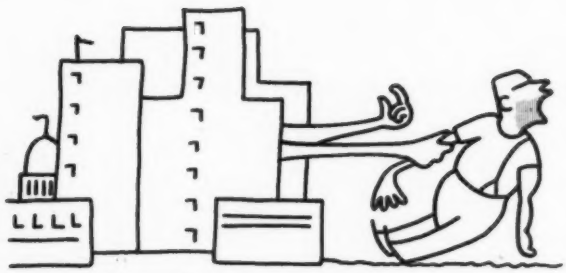


Large cities sometimes find themselves hemmed in by small incorporated places and so cannot use the annexation device.

TRENDS

in urban fringe areas

By JOHN C. BOLLENS*
Department of Political Science
University of California
Los Angeles, Calif.



Fringe residents often resist annexation even though it means better service and more efficient machinery of government.

PROMINENT AMONG URBAN trends are the growing significance of the urban fringe and the attention by more cities to the general problem. Urban fringe growth is nationwide, bringing forth numerous difficulties that will not eliminate themselves. As the result of many technological improvements, there are increases in both the number of people living in urban areas and the amount of land which is urbanized. However, a substantial portion of urban land is not within the corporate boundaries of any city.

Greater urbanization of the nation's people has been accompanied by greater suburbanization, and the two-way process is continuing. Most of our population increase in the last decade has been in urban areas, but much of the gain within these areas has occurred in suburbs and fringes. A considerable part of the scattering of urban people over more land is taking place in territory adjacent to, but not legally part of, a municipality. The rate of population growth in some unincorporated fringe sectors is phenomenal. Numerous fringes have one-fourth to one-half as many residents as the neighboring city. A few are more populous than the nearby municipality itself. Over all, several million urban residents in the United States now live in unincorporated urban areas.

Underlying most problems of fringe areas is one compelling fact: fringe residents are living in urban areas and yet they resist coming under the jurisdiction of comprehensive local governmental machinery capable of satisfying the numerous community needs. In practice, they select a few public services that satisfy, sometimes only in part, their most acute needs. Most often they seek to acquire a few services from the county, the adjoining city, a special-purpose district, or a private company. This piecemeal service arrangement may be fairly satisfactory when a fringe is first being occupied, but as growth mounts it becomes increasingly unrealistic. Nevertheless, many fringes are reluctant to meet the actual conditions facing them.

Inferior Fringe Conditions

This reluctant, unrealistic approach causes most fringe areas to have several urban deficiencies and inferior conditions. Lack of adequate planning guides and building regulations is very prevalent. Drainage, sewers, or sanitation are often missing or of poor quality. Shortcomings in streets (if streets even exist)) are often noticeable—poor construction, substandard lighting, no paving. Other significant weaknesses are in fire protection, water, law enforcement, health, recreation, smoke abatement and transportation.

Effects Often Harmful

Such fringe conditions frequently have harmful effects within the entire urban area and become more serious as fringes become older. The casual observer may feel that if fringe residents want to live in this type of environment the decision should rest with them. This viewpoint, however, disregards an important consideration. The effects of fringe problem conditions are not confined to the area causing them. Many times the shortcomings of the fringe spill over and harass the neighboring municipality. This is particularly apparent in health, law-enforcement, and fire-protection activities. Thus, the growth of the fringe and its weaknesses are usually matters of major importance and serious consequence for cities. This is why the fringe-area problem is one of the major questions currently confronting many municipal officials.

Because of recent widespread

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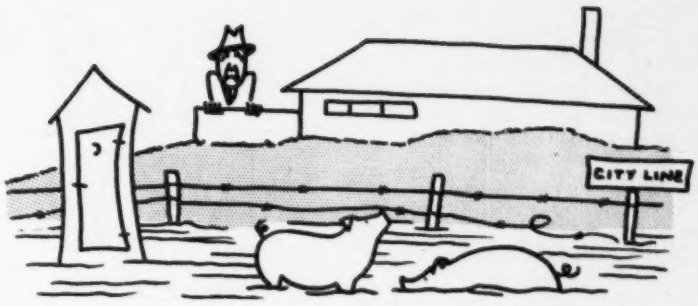
* This paper was presented on September 22, 1953, at the 39th annual conference of the International City Managers' Association in Los Angeles. Mr. Bollens is the author of *Appointed Executive Local Government*, published by the Haynes Foundation, 916 Consolidated Building, Los Angeles 14, and co-author of *Local Government in California*, issued by the University of California Press, Berkeley 4. He has acted as consultant on area problems to a number of communities.

recognition that the problems of the fringe quickly or ultimately become the problems of the adjoining city, more and more municipalities are giving serious attention to the matter. Although the largest part of the job lies not behind but ahead, noteworthy study and action by some cities give hope for a lessening of the fringe difficulty. Progress is being made and patterns of problem solving are being worked out and tested. Generally, however, the attainments have not so far matched the seriousness and importance of the difficulty. There is a real need for more cities both to study and act intelligently and comprehensively in the field of area adjustment.



"The effects of fringe problem conditions are not confined to the area."

Annexations by 402 Cities in 1952

Cities are using various approaches to the fringe area problem. The most frequent method is annexation of adjacent urbanized territory. During a four-year period in the late 1930's, annexations were completed each year by an average of only 48 cities. The number spurted as the second World War came to a conclusion and last year 402 cities made annexations. This is the highest total attained during the last 15 years.

Most of the annexations that have been accomplished in the post-war years have been small in area, but annexations of significant size have been far from unknown. The largest amount of land annexed to one city involved 82 square miles which became part of Atlanta in 1951. Dallas, Houston, and San Antonio have also absorbed many square miles of land. Three additional cities each brought in more than 20 square miles within a 12-month period. Eight other municipalities acquired more than 10 square miles of land during one year. Numerous other cities, usually smaller in area, increased their territory by at least 25% within one year.

Prime Users of Annexation

Annexation is most repeatedly used by cities of 25,000 to 100,000 inhabitants and those of 5,000 to 25,000. Many municipalities of these two population classes are in areas of expanding population. They have apparently learned a significant lesson from many of their larger counterparts who find themselves hemmed in by small incorporated places and are therefore incapable of using the annexation device.

Out of the extensive utilization of annexation has come agreement that four elements are required for successful use of this method of dealing with fringe problems. The first is that annexation should be general and not selective. Spot annexations of wealthy subdivisions or areas built up with streets and sewers should not be the only guide for acquiring territory. Consideration must also be given to the long-term hazards of poorly developed fringe areas. A second point of concurrence is that annexation should be undertaken when the fringe is becoming urbanized and first needing city services, and before it is extensively developed. This facilitates the use of proper controls when they will be most effective and avoids future economic waste.

Financing and Development

The third requirement is that annexation should conform to sound financing and well-balanced, over-all development. Areas should be absorbed when a full complement of municipal services can be provided without long delay and within the financial ability of the city. Furthermore, intelligent development of the newly acquired area should not take place at the expense of the older parts of the city. The fourth and final point of accord is that the city must accept leadership and responsibility in working out the problems of the city-fringe community so as to avoid curtailment of its own growth. Such leadership and responsibility require the obtaining of a comprehensive understanding of the fringe area coupled with the formulation of an intelligent program of information and action.

Although annexation is the most prevalent way of attacking the fringe-area problem, there are other methods which are lessening fringe difficulties with varying degrees of success. If a city is temporarily handicapped in the annexation activities through its own lack of an established policy and action program or because of restrictive annexation requirements, one or more other techniques are at hand. In some instances one of these methods may be better suited to local conditions than full-fledged annexation.

The first of these possibilities is limited annexation. Its objective is to provide necessary control and guidance in the development of new areas without taxation and without the obligation to furnish all city services to a scattered and lightly developed area. For example, voters in Austin, Texas, recenty amended their charter to enable the city to annex fringe areas for limited zoning and sanitation purposes. In such areas the citizens may vote in councilmanic elections but not on bond issues. They do not pay city taxes and they receive no services except those for which they pay fees.

Another approach being utilized is the extraterritorial power of cities. All or certain classes of municipalities in some states have the right to exercise limited control over territory adjoining their borders. Such regulation usually consists of zoning, subdivision regulations, and construction codes. Usually, jurisdiction may be exercised over that part of the fringe which is within one or a few miles of the city boundaries. This can be a helpful device when available. However, it permits only a limited scope of control and frequently does not include the entire urban fringe.

Special-Purpose Districts

A third type of method is the creation of special-purpose districts. This type of local governmental unit is frequently used by fringe inhabitants who think they are going to have just a few public needs, but their demands expand as the area becomes more urbanized. If a city cannot induce a fringe to annex or lacks a

City officials are unwilling to encourage formation of special districts, each one of which is usually limited to performing a special function.

sufficiently liberal annexation procedure, should its officials encourage the organization of special districts, each one of which is usually limited to performing a single function? Generally, city officials are unwilling to encourage formation of special districts. If they cannot discourage such a development, they are increasingly trying to see that two provisions are adopted: (1) the special district covers as large an area as can be justified, and (2) the directors of the special district are selected from among the officials of existing general local governmental units. It is felt that an area-wide district can better cope with its assignment, and a special district whose governing board members are tied into existing general units is more likely to achieve much-needed coordination.

Incorporation

A fourth option is incorporation and the decision regarding its use is a matter of initiation and judgment by the voting residents of the urban fringe. More often, it is being realized that incorporation is not always an intelligent answer. Many fringe areas have insufficient taxable resources to support the range of services desired by their inhabitants, a situation that is almost always present if the area is largely residential. When incorporation is contemplated, the high cost of certain types of sewers, water lines, and other installations is frequently overlooked. Under such circumstances a fringe which is substandard may, through incorporation, simply become a low quality municipality. In addition, this new city may be highly uncooperative toward the municipality which it continues to border. Some cities, including Cincinnati and Wichita, emphatically oppose fringe incorporations.

Encouraging the county to act in certain fields of control where it already has power to exercise authority can sometimes be used as an approach to reducing fringe difficulties. At times such activity by the county requires added legal authorization. Very often, however, counties, either due to individual choice or legal inability, are not active in exercising regulations in sanitation, health, zoning and subdividing.

Quite closely related to this increased role of the county is legislation which has recently gone into effect in California. Under it the county supervisors may on their own initiative or on petition of the voters establish a county-administered service area in which services above the general county standard can be furnished and for which additional taxes are levied.

The sale of city services to the fringe is a final method to be mentioned here and one about which there is considerable controversy. A growing number of cities are refusing to respond to the fringe's request for one or more functions. Without good cost records and adequate contractual safeguards the city may find itself performing services for the fringe area at the expense of its own taxpayers. Furthermore, this practice delays the annexation process, and fringe dwellers who receive selected services through the city have no incentive to become part of the city. This effect is counterbalanced to some extent by charging outside consumers at rates considerably higher than those paid by city residents. Except for extraordinary situations such as the immediate prevention of hazardous or seriously harmful conditions, the trend is for cities not to respond to fringe requests for one or more services. Response by a city nourishes the continuance of the fringe and works directly counter to efforts of the city to solve the deficiencies permanently. Such assistance often makes living in the fringe financially advantageous.

No One Best Answer

Trends in fringe areas indicate that no one best solution can be applied to the fringe problem for all urban areas or even for cities within a single state. For most situations annexation is the best answer that has been devised up to this time. Many larger cities, however, are practically or entirely surrounded by incorporated places. Action on their need, which frequently has not progressed further than discussion, extends beyond fringe considerations and calls for some type of true metropolitan government.

An important factor contributing to the effectiveness of other methods of eliminating or reducing fringe areas is the need for cities to make themselves more attractive places in which to live. Making cities more livable communities can be an effective and often decisive counterbalance to the real or imagined attractions of fringes. Abolition of excessive noise, dirt, and nuisances; modernization of building, housing, fire, and zoning codes; rehabilitation of blighted areas; formulation of well-founded subdivision regulations, and provision of desired services with the highest possible efficiency and imaginativeness—some or all of these are challenges confronting the officials and citizens of most cities of the United States.

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Seattle Annexes New Areas

WITH THE OFFICIAL ANNEXATION on January 1 of a new nine-mile-square area north of the present city limits, Seattle will boost its population from its present 467,591 to well over half a million, or 543,000. The vote for the annexation was 2 to 1 in favor, whereas a similar proposal lost in 1950 by a few votes. Study groups of citizens in the annexation area aided in disseminating the advantages of annexation on such services as schools, sewers, garbage collection, fire insurance, transportation, etc.

An area of 22 square miles south of the city is expected to vote on annexation next year. If the vote is favorable, another 60,000 people will be added to Seattle's population.

Many Local Bond Issues Approved on November 3

MORE THAN three-quarters of a billion dollars worth of state and local bond issues for a variety of public works projects were approved by the voters at the November 3 election. Relatively few borrowing proposals were rejected.

Some of the major local projects approved include the following:

- In local elections in Ohio, approval of the voters was given to a $35,000,000 Cuyahoga County bond issue for a Cleveland area subway to tie in with a $29,500,000 rapid-transit system already under construction; $7,000,000 of Cleveland urban redevelopment bonds; $14,000,000 of Columbus school district bonds; $10,000,000 Akron sewer bonds, and $5,150,000 Youngstown bonds for streets, parks, playgrounds, and fire stations.
- Philadelphia voters approved bond issues totaling $76,400,000, including $35,750,000 water and sewer and other revenue bonds; $19,000,000 for slum clearance, libraries, parks, recreation centers, health centers, airport, and other improvements; and $21,650,000 of bonds already authorized by the City Council, thus permitting the council to issue an equivalent amount again without referendum approval.
- Chicago voters sanctioned bond issues totaling $36,000,000, including three issues of $10,000,000 each for bridge construction, refuse disposal, and electric streetlight system; $2,000,000 for central municipal heating plant and system, and $4,000,000 for city buildings. A $400,000 bond issue for suburban voting machines was rejected by Chicago area voters.
- A $6,000,000 city bond issue to cover half the cost of a projected $12,000,000 sewage-treatment plant for the Louisville area was approved. Plans call for the Metropolitan Sewer District to finance the other half of the plant through revenue bonds amortized by increasing rates charged users.
- Voters in seven Connecticut towns and cities comprising the Hartford Metropolitan District approved appropriations totaling $6,500,000 for improvement of water and sewer facilities. Voters of a sanitary district in Virginia's Henrico County approved a $3,950,000 water and sewerage system bond issue.
- In St. Paul, Minn., $38,900,000 in bond issues was approved for streets, bridges, schools, other projects. In Detroit, Mich., $20,000,000 was approved for a sewer system.
- Major rejections of bond issues were recorded in San Francisco where six proposals totaling $16,684,000 were defeated, including issues for the municipal railway, swimming pools and playgrounds, an exhibit hall, library, and a voting-machine storage warehouse.
- Another rejection was a $6,200,000 bond issue for a sewage-treatment plant in Erie, Pa.

Other Local Election Results

Among other provisions passed upon by the voters November 3 were: Approval of eight amendments to Tennessee's 83-year-old constitution, including an optional "home rule" plan for cities, vigorously backed by the Tennessee Municipal League; approval of constitutional amendments, in New York, to raise tax and debt limitations and to authorize the legislature to permit counties, towns, villages, and cities to issue bonds outside present constitutional debt limits for joint community water supply purposes.

Proposals for fluoridation of municipal water supplies, as a dental decay-prevention measure, were rejected by the voters of Lansing, Mich., and Cincinnati, Ohio. Lansing voters authorized their City Council, however, to proceed with revision of the city charter. A Cincinnati city charter amendment for increasing councilmen's pay from $5,000 to $8,000 a year was approved, but a proposed levy of 4.81 mills was rejected.

An outstanding victory was won by the City Charter Committee in Cincinnati, which elected a majority of City Council candidates on November 3, returned a Charter Mayor, and retained Chairman Henry Bettman and member Wallace Collett on the City Planning Commission after a bitter political feud involving the alleged prior affiliations of the resigned director of the City Planning Commission.

A major change in city administration was approved in Newark, N. J., where the voters decided to replace their present five city commissioners with a mayor and nine councilmen, beginning next summer. This referendum was conducted under New Jersey's 1950 Optional Municipal Charter Laws. The plan calls for a business administrator, under the mayor, to help prepare the annual budget and administer the central purchasing system and the personnel system in addition to other duties assigned by the council.

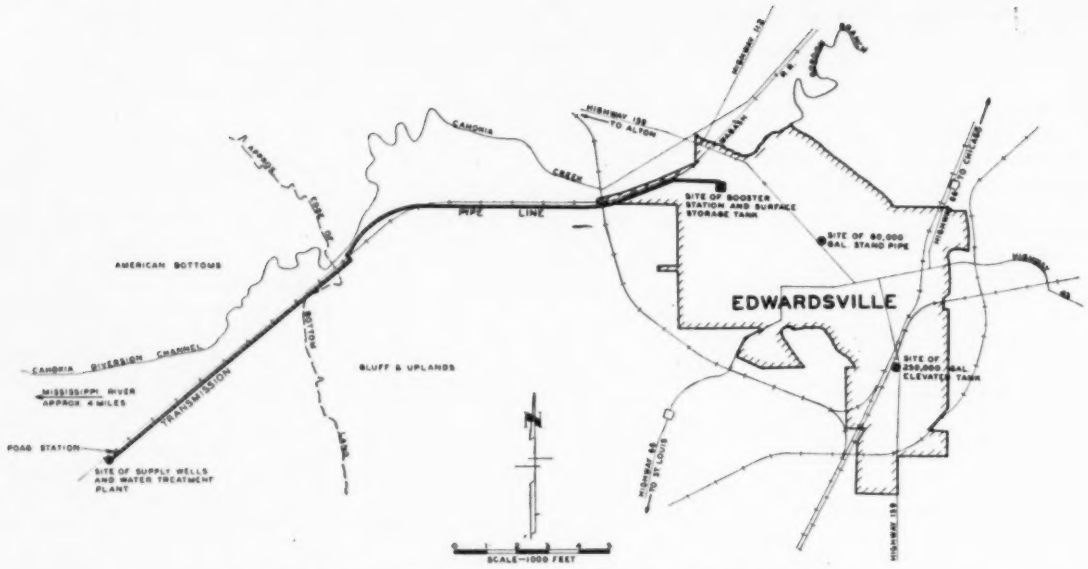
Other New Jersey municipalities which took action on November 3 under the State's Optional Municipal Charter Law (the so-called Faulkner Act) were the following:

Parsippany-Troy Hills adopted the council-manager government, as did Mount Holly; Rahway adopted a strong mayor-council charter; and Cedar Grove, Irvington, and North Plainfield all voted to establish charter commissions. Englewood voters retained their existing form of government, but voted to employ a full-time business administrator. In Bridgewater Township the voters failed to authorize council-manager government.

REPRESENTATIVE MUNICIPAL BOND SALES
November 1 through November 16, 1953

Date of Sale			*Purpose*	*Average Maturity (Years)*	*Net Interest Cost Per Cent*
11-2	Waterford, Conn.	$ 800,000	Schoo	10½	2.15
11-2	Oakwood, Ohio	150,000	Water Works Improvement	14	2.065
11-2	Gage, Okla.	7,500	Water Works	6½	5.22
11-3	Fond du Lac, Wis.	635,000	Corporate Purpose	10⅛	1.972
11-3	Wichita, Kans.	2,567,925 150,000	Paving, Sewer, Street Opening Park	5½	1.746
11-3	Fargo, N. D.	$ 316,000 350,000	Refunding Improvement	6½ 16	2.93
11-4	New London, Wis.	325,000	Sewage Disposal System	10½	2.18
11-4	Dune Acres, Ind.	20,000	Water Works Revenue—1953	10¾	4.915
11-5	Rotterdam, N. Y.	12,600	Fire Dist. No. 1	5	2.934
11-5	Middlesex Co., N. J.	527,000	General Improvement	5½	1.67
11-6	Columbus, Ohio	1,975,100	Municipal Airport Bond Fund No. 14, Unlimited Tax	11½	1.952
11-9	Eugene, Ore.	80,353	Bancroft Improvement Ser. "I"	5⅔	2.248
11-10	Birmingham, Ala.	420,000	Public Improvement	5⅔	1.935
11-10	Indianaola, Ia.	100,000	Electric Revenue	14	2.835

COMPILED from THE DAILY BOND BUYER



Map of the transmission line that supplies water to Edwardsville.

A City's Five-Year Fight for Water

THE PEOPLE of Edwardsville, Ill., have been fighting for their water supply since the city's incorporation more than 80 years ago; but, in the past five years, the struggle has been most acute. The effort has progressed from the early stages of securing a supply of water to the present stage in which an adequate supply of soft water, suitable for all general domestic and industrial uses, is about to be realized. Many engineering, legal, financing, and political entanglements developed along the way.

By J. R. GARDNER
Warren & Van Praag, Inc.
Consulting Engineers
Decatur, Ill.

Location on Highway

The city (1950 population, 9,000) is located on the heavily traveled transcontinental Highway 66, about 20 miles northeast of St. Louis, Mo. It is on the fringe of the heavy industrial areas of East St. Louis and of Alton, Ill., a factor that has influenced the growth of the city. Also, it is the focal point for several lesser highways that radiate, in all directions, from the city. And it is served by the St. Louis-Chicago and St. Louis-Detroit branches of the Wabash Railroad, among several other railroads. One of the last remaining interurban electric railways, the Illinois Terminal Railroad, provides rail facilities.

Edwardsville was incorporated in 1872. In 1894, an effort was made to establish a franchise and begin construction of a water system. The attempt failed because of inability to secure a sufficient quantity of water from wells drilled nearby. At the present time, water and sewer facilities are available to all the built-up areas of the city, and water facilities are tapped by areas that adjoin the 5-mile pipeline that transmits water from the city's well supply. In 1952, there were 2,870 customers purchasing water from the Edwardsville system.

The road to an adequate water supply was all uphill for Edwardsville. In 1898, the Edwardsville Water Company was organized and a franchise negotiated to furnish water to the city. Water wells of adequate capacity were developed in a sand and gravel formation at a site near the small community of Poag, 5 miles west of the city.

The first wells constructed at the Poag site ranged in depth from 55 to 80 feet. The two wells that are now in use range in depth from 110 to 115 feet. Until March 1953, a third well (Well No. 1) was also active, but because of a damaged screen, it has been abandoned. Steps are now being taken to construct a new well as a replacement.

Wells No. 2 and 3

Well No. 2 is equipped with a 1,300-gpm, low-head, electric-driven, turbine-type pump, which discharges into a 225,000-gallon, surface-storage reservoir located nearby. Well No. 3 is equipped with an 800-gpm, high-head, turbine-type pump, driven by an electric motor. A gasoline engine is also provided, in case of electric-power failure. The latter pumping unit is arranged to discharge to the 225,000-gallon reservoir, or directly to the city. Two high-service pumps, one a 700-gpm and the other a 1,000-gpm, both of the electric-driven hori-

zontal centrifugal type transmit water from the reservoir through a 12-inch pipeline to the distribution system. A 79,900-gallon standpipe and a 250,000-gallon elevated tank float on the water distribution system.

The water is untreated except for chlorination. It has a heavy iron content (2.8 ppm) that causes considerable staining of bathroom fixtures, heavy incrustation of water mains and services, and the other typical problems that result from high iron content. According to U. S. Public Health Service standards, the water is moderately hard (210 ppm as $CaCO_3$), which also is a nuisance to users.

Struggle to Buy Water System

In 1947, the city considered the purchase of a water system. In order to arrive at a fair evaluation of the system, the services of Warren & Van Praag, Inc., consulting engineers of Decatur, Ill., were secured to prepare and present a report and appraisal of the system. At about the same time, an appraisal of the system was made by Alvord, Burdick, & Howson, consulting engineers of Chicago, for the Illinois Cities Water Company who, that year, had purchased the system from the Edwardsville Water Company. As a result of these two appraisals, a purchase price was agreed upon.

In the spring of 1948, the City Council adopted four ordinances: to purchase the system for $556,000; to issue $625,000 in water-works purchase revenue bonds; to provide for the assumption of contracts made by the Illinois Cities Water Company for improvements to the water system, including a contract with the Permutit Company for the delivery of water-treatment equipment; to provide new water rates.

Shortly thereafter, the City Council adopted an ordinance for the issuance of water-revenue bonds in the principal amount of $400,000 for proposed improvements to the water system. Within the statutory time limit, a petition was filed calling for a referendum on the proposed $400,000 water-revenue bond issue. The proposition was hotly contested and finally defeated.

On September 29, 1948, three weeks before the referendum on the revenue issue was held, a suit was filed to set aside the purchase of the water system by the city. This suit was not settled by June 1949, when the City Council voted to default interest on the water-works purchase bonds. Several months later, a suit was filed by the water-works purchase bondholders for collection of the accrued interest. The suit was settled in December 1949 by the issuance of a court order requiring the city to pay the accrued interest. Then, in December 1950, the suit to set aside the purchase of the water system was dismissed from the court docket.

The already difficult situation was intensified by other problems. A break occurred in the 12-inch transmission pipeline between the well-supply field and the city on January 9, 1949. The city was cut off from water for four hours while repairs were made.

Another law suit was instituted in 1950, when the city accepted part of the water-treatment equipment from the Permutit Company without sufficient funds to pay the bill. The company filed suit asking a declaratory judgment against the city for payment of $38,392. In October, the city was served with a court order requiring payment of this judgment plus court costs and other costs accrued by the company.

New Ordinance Proposed

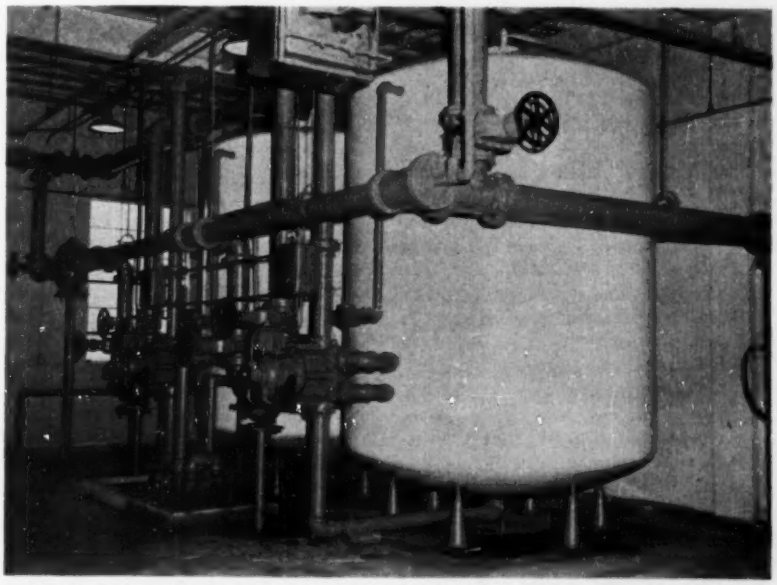
Early in 1952, a $400,000 bond ordinance to finance needed improvements was adopted by the City Council. This was the same bond issue proposal that was defeated in 1948. However, since a petition calling for a referendum was not presented within the statutory time limit, the ordinance then became effective.

Bids for the construction of the improvements were taken in the spring of 1952. As a result of rising prices in construction costs during the four years of negotiations, the lowest and best bid for the construction of the improvements far exceeded the funds available. The City Council then adopted an amending ordinance, setting forth the improvements actually to be constructed. No petition for referendum was filed and the amending ordinance became effective at the end of the statutory time limit. The improvements included:

(1) Rehabilitation of existing deep-well pumping equipment and changing electric motor controls from 2,300-volt to 440-volt characteristics. Since awarding the contract, Well No. 1 has become inoperative. The city now intends to place the pumping equipment specified for that well in a new well yet to be constructed.

(2) Installation of gravity-aeration equipment, pressure-type filtration and zeolite-softening equipment, and necessary accessory equipment. This is the equipment purchased from the Permutit Company. Certain changes were necessary in order to provide for up-to-date development in this type of equipment during the four years of negotiations. Also included was construction of housing for the equipment, pumping facilities, salt-storage facilities, laboratory, Wallace & Tiernan chlorination facilities, and office and sanitary facilities.

The water-treatment plant will be capable of delivering iron-free, soft water of 5 grains carbonate-hardness at a rate of 900 gpm. Water will be pumped from the 225,000-gallon,



The Permutit softener tanks are stationed within the water-treatment building.

surface-storage reservoir through the pressure-type, water-conditioning equipment and through the transmission pipeline to the city.

(3) Cleaning and repairing the transmission pipeline. Pressure and flow tests were made; it was discovered that the efficiency of this line was greatly impaired. An average coefficient of 62 was determined for this existing cast-iron pipeline.

(4) Construction, by the Chicago Bridge and Iron Company, of a 450,000-gallon, surface-storage reservoir in the city and installation of booster-pumping facilities at this reservoir. Water will discharge from the transmission pipeline into the 450,000-gallon reservoir, and the booster pumps will pump from the reservoir to the distribution system. These are Aurora Pump Company units, electric driven, with auxiliary Herculese Motor Company gasoline-engine drive for use during power shortages.

(5) Water-main extensions and connections at various locations in the water-distribution system to serve additional customers, and to provide for improved fire service.

The principal items which were deleted from the original project was a 250,000-gallon, elevated tank which would replace the 79,900-gallon standpipe, and a larger water-main construction program which would provide more improved water and fire service.

A contract incorporating the above items was awarded in April 1952 to George W. Wheatley & Son, general contractors of Dupo, Ill. About a month later, the contractor was given a work order to proceed with construction. At the present time, the water-works improvement project contract is estimated to be more than 90% complete. Some delay was caused by the scarcity of plate steel, which held up construction operations on the 450,000-gallon water storage tank.

Thus, a project which took more than five years to get under way is finally on the road to a successful conclusion. We expect it to be a showplace so excellent in operation that the struggle which developed along the way may be completely forgotten.

Planning and Operations Must Go Together

By DANIEL L. KURSHAN
Assistant to the Executive Director
Port of New York Authority

THE GREAT UNCHARTED FIELD of municipal planning that is begging for exploration is in operational planning. Here is an opportunity for planners adequately equipped with long-range goals and policies and armed with the statistical tools of their profession to apply planning where it will really pay off—in the day-to-day operations of government agencies.

Day-to-Day Decisions

These day-to-day administrative decisions of government are largely made without reference to underlying planning considerations. Yet their cumulative importance far outweighs that of the decisions made at the facility planning stage to which planning skills presumably are applied. For example, the plan for a new major transportation artery, a responsibility of the planning commission, may become academic before ground is ever broken owing to a change in neighborhood patterns resulting from the composite effect of numerous departmental operating policies. The number and character of schools required (a long-range question) is determined in practice by the operating decision of what the teacher-pupil ratio is to be.

Then, too, the sanitation department's decision to require the separation of burnable from nonburnable refuse will condition the decision on the number of landfills or marine unloading plants required. Police quotas and manning tables will determine the number of precincts and mobile equipment required. Indeed, some operating decisions are reflected immediately in capital expenditures. For example, a two-way radio car may wind up as a proposal for a new broadcasting station. A changeover in the technique for handling dependent children can transform a line in the expense budget for social workers into a new institution in the capital program.

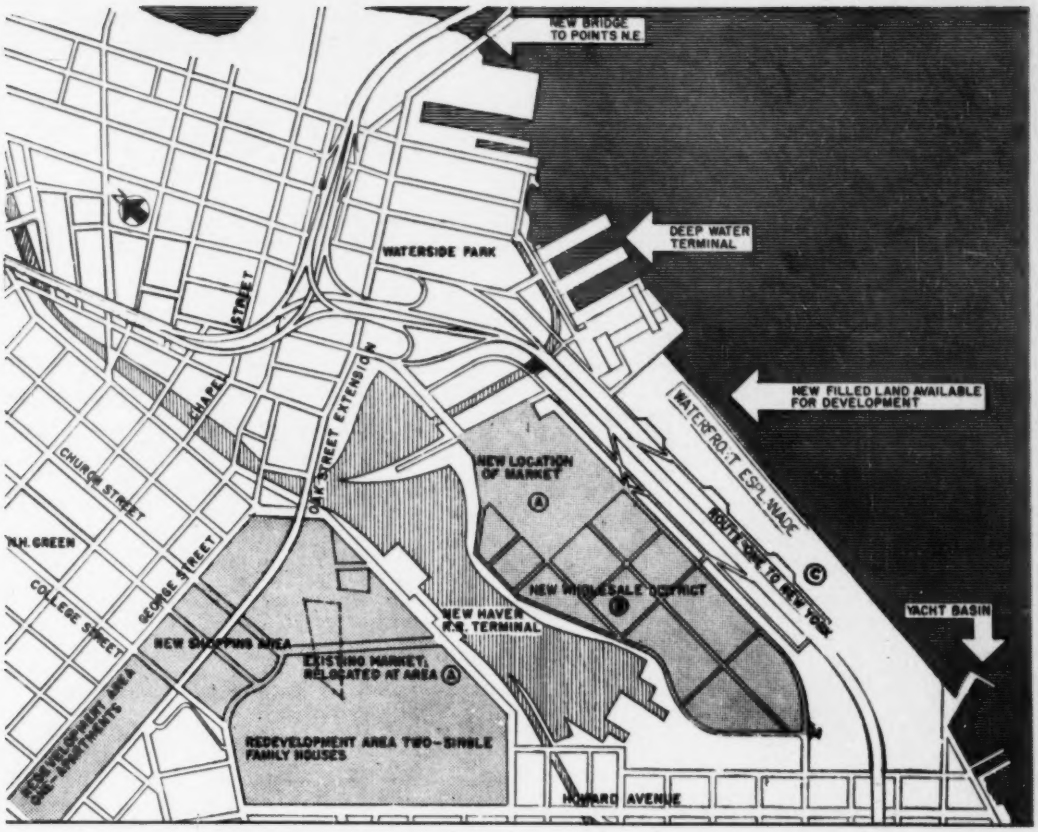
Operating decisions and long-term plans are inextricably interwoven. The problem has been that the planners have been walled off with their long-range plans and haven't sufficiently participated in the day-to-day planning that has an impact on long-range goals. In each of the instances mentioned, the planners' knowledge of long-term objectives and their possession of the applicable population, economic, and land use data, would have made an important impact on the successful solution of the day-to-day administrative problems presented.

Bringing planning down to the operating level means emphasizing the need for thinking in planning terms not only for capital projects but for all of the programs and what should be the programs of operating agencies. This type of thinking would ultimately result in the preparation by each operating department of a statement of objectives and written policies. It would lead to the formulation of work programs, program budgets, performance standards, and five-year operating forecasts. Only through a close interplay between those with the planning facts and forecasts, and the administrators, can any enterprise operate successfully over the long run.

Functions of Planning

Concretely, what I am proposing is that planning perform the following functions: First, it should more adequately fill a void in the classic long-range planning for the municipality. As part of its responsibility for preparing long-range plans for population, economics, land use, and perhaps circulation, it must, of course, constitute itself the central reservoir for information, research, and development in these fields. Secondly, it should review the development program for the municipality to insure that it conforms with long-range plans. This would include at least a review responsibility for capital programming, redevelopment, local area improvement programs and zoning. Third, it should stimulate and participate in agency operational planning.

EDITORIAL NOTE: This article contains excerpts from an address on "Long-Range Planning, Capital Programming and Planning Commissions," presented before the New York State Federation of Official Planning and Zoning Boards, at Harriman, N. Y., September 30, 1953.



New Haven, Conn.,

Chamber Backs 10-Point Redevelopment Program

AN AMBITIOUS 10-POINT program for development of New Haven's harbor and commercial areas is being promoted by the New Haven Chamber of Commerce in cooperation with municipal agencies concerned with the improvements. The program is the result of the work of five Chamber committees which studied New Haven's waterfront region for six months. These committees included the Industrial Development Committee, the Urban Redevelopment Committee, the Highway Committee, the Parking Committee, and the Harbor Development Committee.

The 10-point program has grown out of previous Chamber of Commerce recommendations for the redevelopment of New Haven, which were presented to the City Plan Commission. The Chamber also sponsored permissive legislation which allowed New Haven to set up an Urban Redevelopment Agency.

The accompanying map shows the section of the city where a major portion of the program is concentrated. The recommendations include the following points:

1. Move the produce market on South Orange and Hill Streets to the filled land on the harbor's west side. (A)

2. Redevelop the old produce-market area, creating a residential region, a new retail district, and parking facilities.

3. Zone the filled land south of the proposed new market as Business "B" for use as a wholesale and warehouse distribution center. (B)

4. Landscape and otherwise beautify the filled land east of new Route No. 1 to create an attractive waterfront esplanade, with this strip of land to be retained by the city for further development. To the north of the esplanade, a deep-water terminal to accommodate sea-going vessels should be built. (C)

5. Develop the high land on the east side of the harbor as a park. Make filled swamp land at the waterfront available for industrial sites. (Not shown on map.)

6. Develop Quinnipiac Valley as an industrial area.

7. Create a Harbor Authority to promote the development of the foregoing objectives.

8. Construct a highway linking the expressway (Route No. 1) to the central city, with adequate parking facilities at points of egress and access along the connecting link.

9. Support Parking Authority in its program to develop five areas for off-street parking.

10. Immediate employment by the city of a competent traffic engineer to work with existing municipal agencies, including the Urban Redevelopment Agency, the City Plan Commission, the Parking Authority, and the Police Department, in the development of this program and for guidance in solving the over-all traffic problems of the city.

"We have found that the Gradall is by far the most economical machine for city maintenance and construction work"

Mr. Harry Hord (third from left) accepting delivery of latest of 8 Gradalls purchased by the City of Houston.

Typical Gradall job. Equipped with offset boom, it digs narrow drainage ditch right behind curbing. Gradall works from street, without harming tree lawns, at the same time keeps one lane open for traffic. With a quick change of attachments it will backfill and dress tree lawn.

Mr. Harry C. Hord, Jr.
General Superintendent, Street Repair Division
Houston, Texas

Mr. Hord went on to say:

"The fact that the City of Houston now owns eight Gradalls is evidence of this fact.

"The Gradall does so many different jobs that we are able to keep our fleet busy all the time. They never sit idle in the yard. At the same time we keep our equipment investment to a minimum and still accomplish a maximum amount of work.

"No city street department should be without one or more of these machines."

The City of Houston's experience with Gradalls is exactly like that of many other cities and towns that have saved money with these multi-purpose machines.

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Gradall Distributors in over 75 principal cities in the United States and Canada

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Zoning and Planning Notes

Edited by NORMAN WILLIAMS, Jr.

Recent Redevelopment Cases

MARYLAND. *Herzinger* v. *Mayor & City Council of Baltimore*, 98 Atlantic (2d) 87 (Court of Appeals, July 2, 1953.)

OREGON. *Foeller* v. *Housing Authority of Portland*, 256 Pacific (2d) 752 (Supreme Court, April 29, 1953).

PENNSYLVANIA. *Oliver* v. *City of Clairton*, 98 Atlantic (2d) 47 (Supreme Court, June 26, 1953).

ILLINOIS. *People* ex rel. *Gutknecht* v. *City of Chicago*, 111 North Eastern (2d) 626 (Supreme Court, March 23, 1953).

OHIO. In re *Cincinnati Metropolitan Housing Authority*, 99 North Eastern (2d) 761 (Supreme Court, June 20, 1951).

OHIO. *State* ex rel. *Bruestle* v. *Rich*, 110 North Eastern (2d) 778 (Supreme Court, February 18, 1953).

NEW YORK. *Hunter* v. *City of New York*, 121 N. Y. Supplement (2d) 841 (Supreme Court, March 3, 1953).

NEW YORK. *Kaskel* v. *Impellitteri*, 121 N. Y. Supplement (2d) 848 (Supreme Court, March 13, 1953), affirmed by memorandum, 120 N. Y. Supplement (2d) 758 (Appellate Division, April 16, 1953), motion for leave to appeal to Court of Appeals granted, 121 N. Y. Supplement (2d) 270 (May 12, 1953).

NEW YORK. In re *Harlem Slum Clearance Project* v. *City of New York*, 114 N. Y. Supplement (2d) 787 (Supreme Court, July 14, 1952).

The cases listed above give an indication of the substantial volume of litigation now going on in the state courts to test the constitutional validity of legislation authorizing urban redevelopment, primarily in cooperation with the federal Title I slum clearance program. Many of these opinions involve orthodox issues of law under the public use—public purpose doctrine (the two are so often confused as to be practically interchangeable); but a few involve special issues that are now arising for the first time, particularly in connection with redevelopment of blighted vacant land.

The Maryland Case

The Maryland case involved a broadly worded 1948 state constitutional amendment on urban redevelopment, together with the implementing sections of the Baltimore City Charter, and a local ordinance providing for redevelopment of "slums, blighted areas, or arrested areas" only. The area involved was apparently a typical slum, located near Johns Hopkins Hospital and with two federal housing developments in the vicinity. The Court held that, even though after condemnation land might be resold into private hands, the taking would be for a public use "insofar as that taking may accomplish a proper public benefit." The Maryland Court therefore upheld the broader of the two traditional interpretations of the public use—public purpose doctrine.

The Oregon Opinion

In the extremely lengthy Oregon opinion, condemnation for redevelopment purposes was upheld on quite a different theory. The area involved was an old primarily residential district, now entirely surrounded by (and all zoned for) industries, and crossed by heavy traffic arteries. While it was alleged that redevelopment was being planned for commercial and industrial purposes, no official action in that direction had been taken. The Court held that the phrase "public use" must involve direct use by the public, and not merely a public benefit. Since the final purpose of the condemnation was not yet officially specified, the Court noted that it was possible that the area in question would be converted to an unquestionably public use, such as a park or a public building. However, the Court also held that the requirement of a public use would be satisfied by the public clearance and replanning of the area, and that the length of time was not of any binding importance in connection with the existence of a public use. The opinion also contains an elaborate discussion of other recent cases in the field.

> Clearly, the public will have the use of the property while the old structures are being wrecked and while the "site improvements," of which the complaint speaks, are being made. During that period the property will be devoted to the public's occupancy and use. Tearing down the old structures and making the site improvements are not, however, the most important of the operations that will take place in the transition of the property's use. The matter of greatest consequence will be the transformation to which the entire tract will be put, and the disappearance from the area of conditions which breed vice, disease, delinquency and an undue number of fire calls. It may be that the public's ownership of the property will not be for a long period, but the length of the period is unimportant unless it in itself indicates that acquirement of the fee is unnecessary and that some other estate in the property would serve equally well.

This language, spelling out clearance and replanning as being sufficient to constitute "public use," is unusual in these opinions.

The Pennsylvania Case

The Pennsylvania case involved the proposed redevelopment of an area for expansion of an existing industrial plant, apparently to keep it from moving away. The local Redevelopment Authority initiated the proposal, and the area was subsequently certified as blighted by the Planning Commission after substantial deliberation, personal examination of the premises, and obtaining a report by a consultant. The area was apparently a typical residential slum, long zoned for heavy industry and surrounded by heavy traffic arteries at the edge of an expanding industrial area. When a property owner challenged the proceedings on the grounds of lack of compliance with the Enabling Act, the Court held that the Planning Commisison had acted in accordance with its statutory responsibilities, and that it made no real difference whether the Commission or the Authority had taken the initiative. An allegation that the Planning Commission failed to prepare a redevelopment area plan containing all the information required by the statute was also dismissed as merely technical, since the same information was in the proposal. A large part of the area was vacant, and the Court pointed out briefly that the Pennsylvania Redevelopment law specifically provides for the use of vacant land. Apparently in this case there was no serious challenge to vacant-land redevelopment on constitutional grounds.

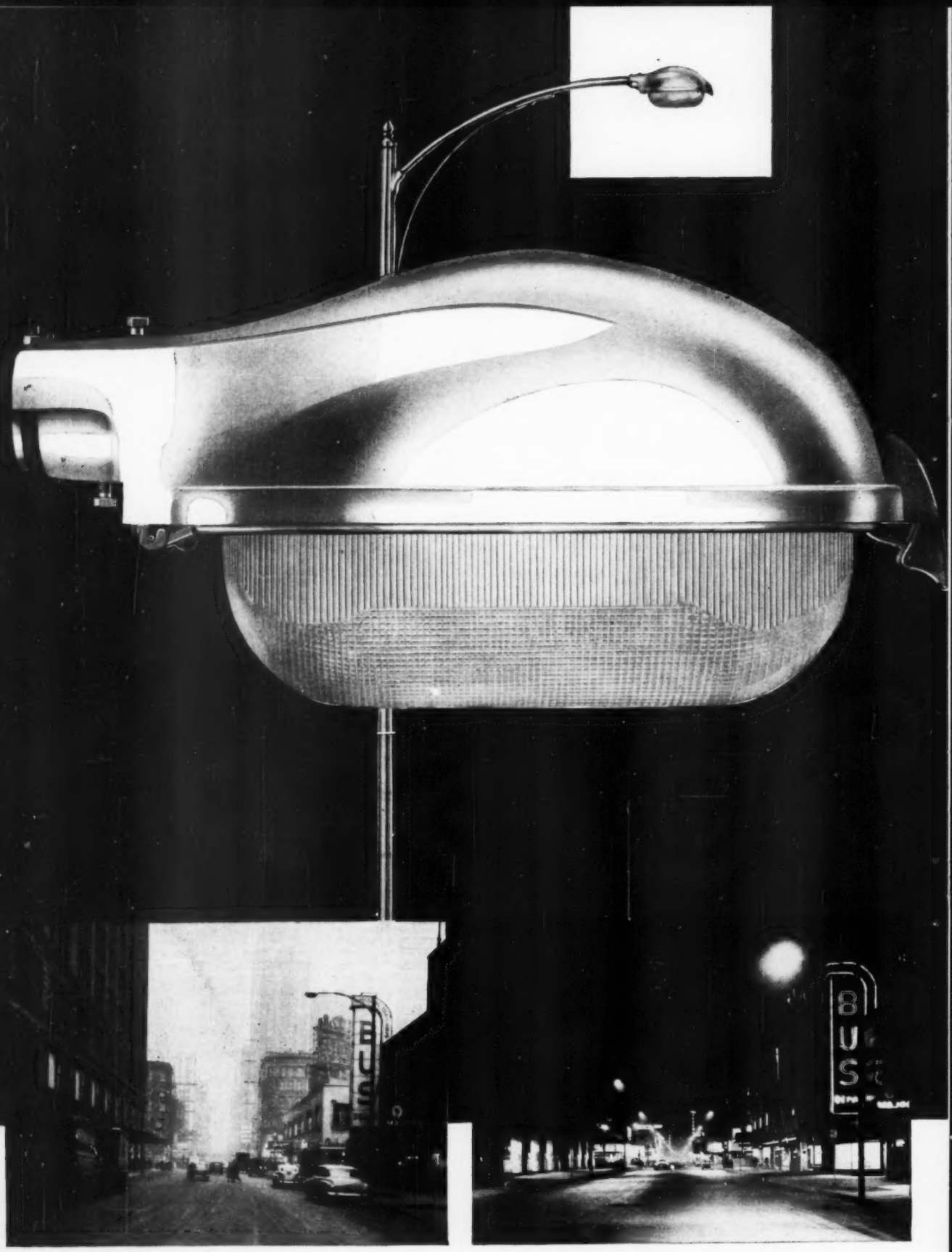
The Illinois Decision

In the Illinois case the redevelopment of blighted vacant land was the central issue and was specifically upheld. The original 1947 Illinois Redevelopment Act had been amended to include vacant-land redevelopment, with findings that areas of predominantly open land are unmarketable because of "obsolete platting, diversity of ownership, deterioration of structures or site improvements, or taxes or special assessment delinquencies usually exceeding the fair value of the land," and that these unmarketable areas impaired sound community growth and promoted creation of slums. It was proposed to condemn and replot such a 40-acre area on Western Avenue in south-west Chicago for 160 single-family homes, selling at around $15,000 apiece. The Court held that these proceedings were valid on several grounds. First, clearing up stagnant areas was thought to be clearly related to the elimination of slums, and thus the two subjects could be handled by a single piece of legislation with a single title. Second, in the present acute housing shortage, the Court held that redevelopment of such areas constituted a public use.

> It will not do to assert that only the tangible physical characteristics of land may constitute an appropriate subject of legislative concern. It is true that with the exception of deteriorated site improvements such as streets, sewers, water mains, and the like, the impairments dealt with by the legislature in the present statute are not of a tangible character. But that does not make them less real, and if their effect is to render land unmarketable and thereby to force an abnormal pattern of residential growth, no valid reason suggests itself why the legislature may not intervene or why it may not use to describe those areas such shorthand terms as it sees fit. For the legislature to define such areas as "blighted" is unquestionably within the legislative competence.

The Court also held that the phrases used in the statute to describe blight were

(*Continued on page 153*)



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It is modern. Day or night, the design of the new OV-20 is in perfect keeping with modern city planning. Its appearance speaks for itself.

It is a practical answer in any town, regardless of size. Whatever the need in your community—to reduce accidents, prevent crime, or promote civic progress—compare the OV-20 first. Also compare the complete Westinghouse Street Lighting Package—lamps, luminaires, ballasts, poles, transformers, all the equipment needed to complete a modern street lighting installation. Why not call your nearest Westinghouse office and ask for a personal demonstration? J-04342

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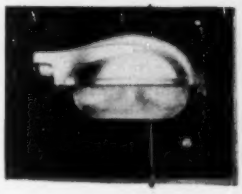

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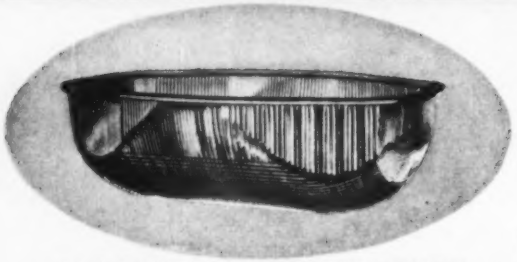

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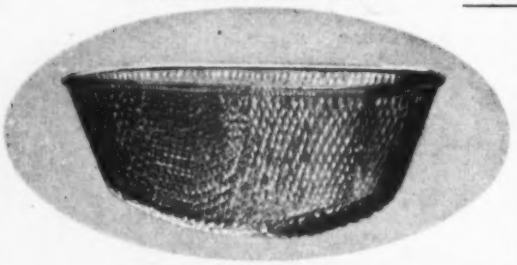

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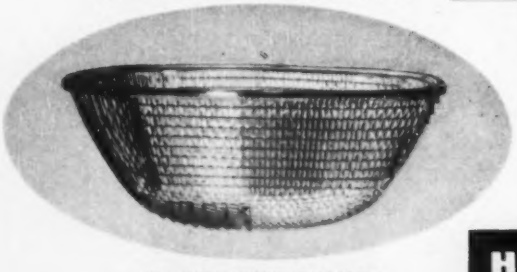

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Horizontal lamp position combined with Holophane light control (due to advanced prismatic design) produces correct distributions in all zones of light emission.

Holophane REFRACTORS provide:

- More efficient lighting systems . . . through greater concentration of light over the roadway area where it is most needed.
- Better visibility through higher object illumination, less glare and higher pavement brightness.

REFRACTOR equipped luminaires can also be used with incandescent lamps up to 15,000 lumens.

Always specify Holophane REFRACTORS—first in advanced engineering design. Write Holophane for data on their complete line of REFRACTORS for all types and sizes of lamps.

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THE HOLOPHANE COMPANY, LTD., THE QUEENSWAY, TORONTO 14, ONTARIO

Highway Lighting in Metropolitan Chicago

By **RICHARD J. SEITZ**
Division Manager, Commercial Sales
and
EDWIN M. PRIMS
Division Street Lighting Engineer
Public Service Company Division
Commonwealth Edison Company
Northbrook, Ill.

THE FIRST MODERN high-speed roadway in Metropolitan Chicago, Cook County, and northern Illinois to be illuminated is the completed 14-mile portion of Edens Expressway. The new limited access roadway, extending north from Chicago and feeding large volumes of traffic to and from North Shore suburbs and through traffic to Milwaukee, is now being illuminated with mercury-vapor lighting units to a level slightly less than one foot-candle.

Early Utility Interest

In the early 1920's, the utility company, recognizing the need for practical information required in the planning, designing, operating, and maintenance of street lighting, offered such a service to the various governmental agencies. By 1935, more than 200 municipalities in northern Illinois had availed themselves of this lighting service. It then also became apparent that studies should be made and equipment developed for the lighting of arterial roads leading into and connecting these municipalities.

One of the first substantial installations of highway lighting was planned, designed, and constructed by the utility on a one-mile stretch of Skokie Highway, the forerunner of the modern Chicagoland Expressway. This system contained twenty-six 10,000-lumen sodium-vapor units mounted on steel standards 25 feet above the pavement. The standards were located 6 feet from the pavement edge and were placed along both sides of the 40-foot roadway in a staggered arrangement about 250 feet apart.

About one year later the State of Illinois installed lighting on a hazardous stretch of Busse Highway, a new section of U. S. Route 12, leading west from Chicago. This system contained seventeen 10,000-lumen sodium-vapor units. Thirteen months later the Illinois Highway Department reported that not one accident

EDITORIAL NOTE: From a paper presented at the National Technical Conference of the Illuminating Engineering Society, September 14-17, 1953, New York, N. Y.

A great deal of planning and testing preceded the final selection of the mercury-vapor luminaires, with the result shown below.

One of the many busy interchanges on the Shoreway. Notice the use of double and single Union Metal bracket arms. Also, suspension type traffic signal supported on Monotube poles.

Modern Lighting

helps minimize driving hazards on Cleveland's Memorial Shoreway

HIGH speed traffic volume on Cleveland's Memorial Shoreway is so large at night that *modern* lighting is a must. Adequate illumination, properly positioned at intersections and approaches, has helped immeasurably in keeping the accident rate low after dark.

City after city finds Monotube lighting poles to be the best and most economical support for outdoor light . . . on streets, expressways and for many special applications.

It will pay you to include graceful, *cold-rolled* Monotube poles in your lighting and modernization plans. Sizes and types are available for every outdoor lighting need. Write The Union Metal Manufacturing Company, Canton 5, Ohio.

Monotube poles are an integral part of this approach ramp railing. A good example of how Monotubes help solve installation problems.

UNION METAL

Monotube Lighting Poles

had occurred. In the few years prior to the installation there had been 19 major accidents on this stretch of highway, all but one occurring at night.

Post-War Planning

Following a directive of the President in 1941 and the subsequent report of the National Interregional Highway Committee, local authorities began planning a system of highways in the vicinity of Chicago, which in turn were to form a part of the Interregional Highway System throughout the country.

During the war years the Cook County Highway Department in cooperation with the State of Illinois, City of Chicago, and the Public Roads Administration, took a leading role in post-war highway planning for the Chicago area. By 1944 a $3,000,000,000 program included Edens Expressway, Congress Street Superhighway, Northwest Superhighway, Tri-State Superhighway, and River Road Expressway bypassing the city. All are limited-access roads, depressed or elevated as the terrain dictates, and each consists of two 36-foot express pavements, divided by a median strip.

The first proposed lighting system for Edens Expressway consisted of 10,000-lumen sodium-vapor units, mounted 25 feet above the pavement, and placed in the median strip between the two roadways. Units were spaced about 200 feet apart on the straightaway, with each standard supporting two luminaires on long mast arms. In accordance with the then current Illuminating Engineering Society recommendations, the system was designed to produce about 0.3 foot-candle of light on the pavement. This proposal was filed for future reference with the thought that before the road was completed, new design and refinements in lighting practices for superhighways would be developed. Local engineers were made aware of the desire of many highway designers to avoid, if possible, tall poles and long brackets both from the standpoint of appearance and safety.

Test Section Installation

A test section of low-mounted silhouette lighting was installed on a 40-foot roadway to compare it with an adjacent high-mounted conventional installation. The roadway selected was set up to simulate one lane of a superhighway with 10-foot shoulders, no parking and no pedestrian traffic.

Since an analysis of the problem revealed it to be primarily one of silhouette seeing, which requires high pavement brightness, it was thought that low-mounted units (4 to 7 feet) directed against the oncoming traffic would meet the requirements by utilizing the high reflection factor of the pavement at grazing angles. Glare was to be controlled by directing the beam below eye level and by eliminating direct light from the lamp filament.

Manufacturers of the Major Equipment used for lighting Edens Expressway

Prestressed concrete standards and aluminum brackets by American Concrete Corporation.

Mercury vapor luminaires and lamps by General Electric Company and Westinghouse Electric Corporation.

Photoelectric cells and relays by Weston Electrical Instrument Corporation.

The Original Installation

Twenty standard 300-watt searchlight-type units with 10-inch focal length reflectors and 12-inch cover glasses were used in the original installation. The units were mounted 10 feet from the edge of the pavement with a 50-foot staggered spacing at an elevation of six feet and were directed so as to intersect the center line of the road at a distance of 100 feet, measured parallel to the roadway. Even though the units were equipped with spherical reflectors to prevent the direct rays from reaching the driver's eyes, it was found necessary to equip them with deep, closely-spaced louvers.

A report prepared by the Illumination Laboratory of the Commonwealth Edison Company and presented to the Cook County Highway Department concluded that the low-mounted system did not compare favorably with the more conventional systems that had been developed over a period of years. It further summarized that when weighed against the current design of high-mounted units, the appearance and safety advantages of the low-mounted type are greatly overbalanced by the deficiencies of illumination.

The accepted lighting system of the Edens Expressway contains 1,081 mercury-vapor units. Prestressed concrete standards were selected on the basis of strength, appearance, low maintenance and initial cost and because they fit the esthetic pattern created by the concrete bridges and ribbons of pavement. Eight-foot aluminum upsweep brackets support I.E.S. Type III luminaires enclosing 20,000-lumen E-H1 mercury lamps at a height of 32 feet above the pavement. The face of standards are set back 7½ feet from the outside edge of the pavements and 95 feet apart in a staggered arrangement along the straightaway. On the curved ramps leading to and from the highway, standards are placed along the outside of the curves at intervals of approximately 160 feet.

All-phase wires feeding the lights are 600-volt neoprene jacketed Type USE cable and neutral wires are bare. All cable is buried directly in the ground at a depth of 2½ feet. All wires are coded to easily identify a part-night from an all-night circuit. Pole-top ballasts are used with the primary connected to the 230-volt taps.

Lighting Controls

Lights are controlled by means of a photoelectric cell and relay. When the north sky illumination falls below 1.0 foot-candle, the relay causes the main mechanically held contactor to close, energizing all circuits. In series with this contactor is a second contactor controlling circuits which operate only part of the night. A time clock opens these part-time circuits at 1 a.m. and closes them again at 5 a.m. When the sky illumination increases to 1.5 foot-candles in the morning, the main contactor opens all circuits.

Foot-candle readings were taken with a G.E. No. P13 cosine corrected meter along the center line of each lane in accordance with recommendations by the I.E.S. Committee on Testing Procedures. The average level after six weeks use was 0.837 foot-candles.

Impact on Future Highway Construction

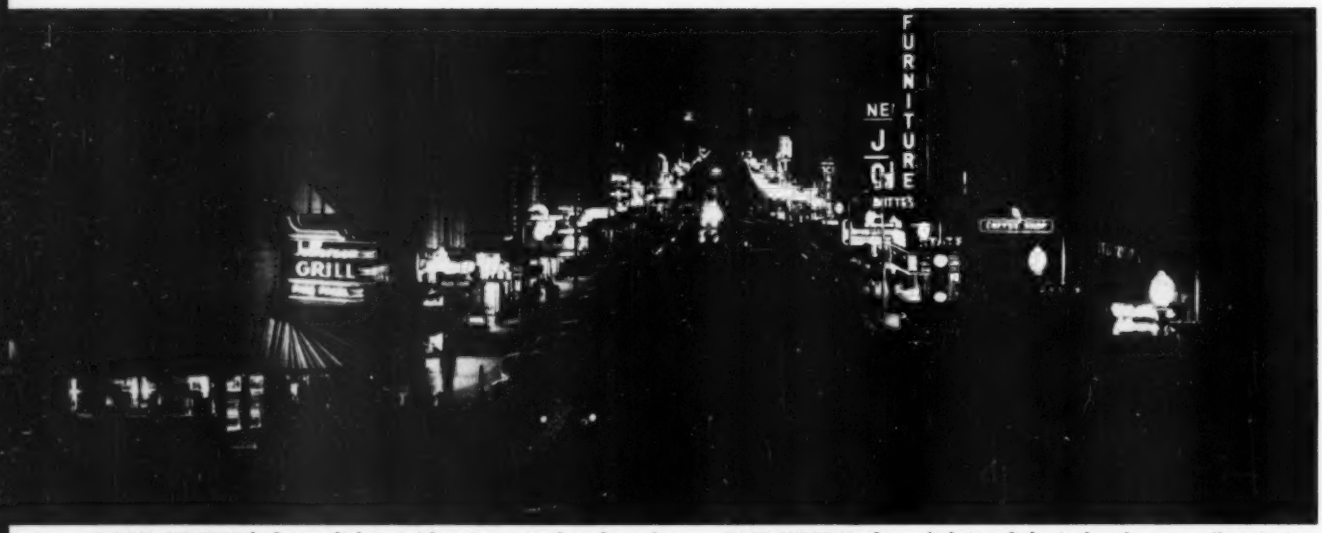
Lighting of Edens Expressway will have a far-reaching influence on road-construction practices. Lighting of Congress Street Superhighway will closely follow the design of Edens Expressway. Other expressways in this Chicagoland project will also contain lighting as an integral part of their safety features.

Some day we may truthfully boast that nighttime driving in this country is as safe as daytime driving.

CRIME AFTER DARK, which flourishes on poorly lit streets, spurred the drive for better lighting. The City Council studied the new modernization plans to provide more effective lighting.

CITY ACTS with a new relighting program for its 100,000 citizens. Mississippi Power and Light Company installed new lights on main streets after planning program with the City Council.

JACKSON THROWS LIGHT ON



DARK STREETS before relighting (above) were often hazardous for drivers and pedestrians. Criminals molested the late strollers, damaged or entered parked cars, and broke store windows.

SAFE STREETS after relighting (below) sharply cut traffic injuries, eliminated the traffic fatalities, and helped police reduce crimes. Traffic moved faster and business was increased.

PLEASED CITIZENS of Jackson like the increased safety provided by the new street lighting. Pedestrians no longer fear criminal attacks, and now feel safer walking or shopping at night.

INCREASED BUSINESS is enjoyed by retail merchants such as jeweller J. T. Stallings, who says, "Lighting increases sales, aids our window displays, and draws in new trade from beyond our city."

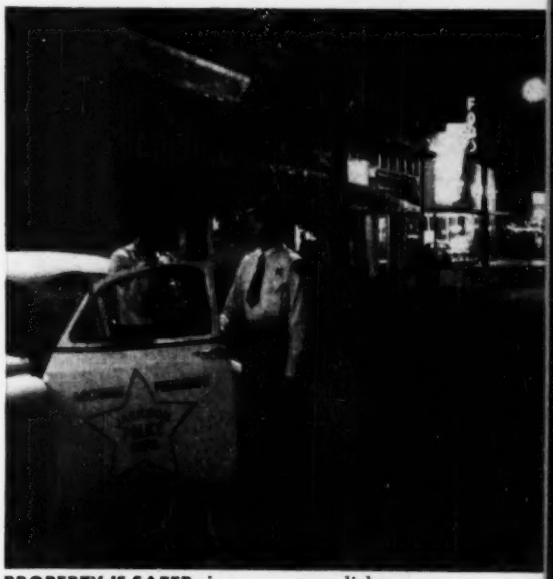
CRIME AT NIGHT

WINS AAA PEDESTRIAN SAFETY AWARD

Jackson, Mississippi has proof of what good street lighting can do to improve a city. Crimes at night have been virtually eliminated on the relighted streets. The new lighting has helped reduce traffic accidents so that not one fatality or injury occurred on these streets in 1952. Business has prospered with merchants reporting increases up to 20% in sales.

The relighting program for Jackson was inspired by the desire to become the "safest city in the nation." The American Automobile Association awarded Jackson a special citation for its record of no pedestrian injuries or fatalities for cities in the 50,000–100,000 population class in 1951.

According to Chief of Police, W. D. Rayfield: "Crime on the city streets has almost disappeared since relighting. The visibility is so fine, that our men can spot a fly moving three blocks away!" And Fire Chief L. F. McDonald says that his equipment can now move faster and more safely to safeguard life and property. The Mayor of Jackson, Allen C. Thompson said, "Installation of new street lights is one of the most important steps we have ever taken to make the city safe and pleasant for its citizens and those from surrounding areas. It has assisted the police and fire departments in their vital work and is making Jackson look more progressive and more prosperous." The relighting program in Jackson is now continuing through the remainder of the city streets.



PROPERTY IS SAFER since new street lights were installed. Police and Fire Departments can get to the scene faster and work more efficiently.

MAYOR Thompson and Rex Brown, President of Mississippi Power and Light Co., are proud of the AAA recognition of Jackson's traffic safety.

How you can benefit by G-E Lighting Engineering

Everywhere in America, cities large and small are becoming safer, more pleasant places in which to live, with the aid of G-E Lighting Engineering. G.E.'s broad experience can help your electric utility plan and promote better lighting in your community too. With the most complete line of equipment available, G.E.'s Lighting Engineers can provide the finest lighting obtainable for every kind of lighting problem. For new literature, write Section 452-134, General Electric Co., Schenectady 5, New York.

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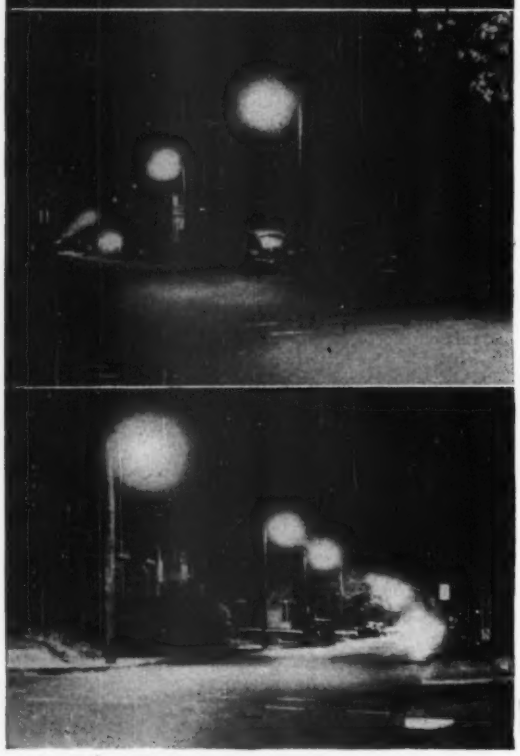

Typical installation system of Brockton Edison Co. Brockton, Mass.

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Municipal Holiday Lighting in Chattanooga

The Chattanooga (Tenn.) Electric Power Board has an outstanding annual holiday program for the decoration of streets and windows. One of last year's effects is shown here, and an EPB window display is on the front cover of this issue.

Bright Lights for Phoenix

Adams Street, in Phoenix, Ariz., is lighted by 15,000-lumen lamps in Line Material Controlite Senior luminaires, which are suspended from 6-foot upsweep brackets on 28-foot standards. This is but a glimpse of the complete system of 5,496 units, which was described in detail on page 133 in the March 1952 issue of THE AMERICAN CITY.

Part of the Grant Avenue business section which had lighting increased twofold.

Duquesne, Pa., Relights

GOOD STREET LIGHTING in the business section of a community gives the shopper a favorable impression and means dollars and cents to the merchants through increased sales. It protects valuable property by discouraging acts of crime and violence which are closely related to darkness.

To gain these benefits, the City of Duquesne recently doubled the lighting along the business section of Grant Avenue. This increase in lighting came about indirectly because of the excellent results achieved through the lighting of the Duquesne Traffic Circle a few years ago. A reduction of 50% in nighttime traffic accidents resulted in the year following the installation. In the last year and a half there have been no serious accidents at the circle and traffic flows freely.

Duquesne City Councilmen, who advanced the program, are proud of the new street lighting and feel that Duquesne residents and visitors are now protected from hoodlums and thieves. That is why the street lighting in the residential sections of the city has also been improved.

These new lighting installations, Grant Avenue and the residential areas, have increased the annual street-lighting budget by only 19 cents per capita, a bargain.

F. KOPRIVER, JR.
Mayor
Duquesne, Pa.

Stuart R. Williams Dies

STUART R. Williams, vice-president in charge of manufacturing, and a director of Holophane Company, Inc., died after an operation at Newark, Ohio. He was 55 years of age.

Mr. Williams joined Holophane in 1929. He was appointed manager of the street-lighting department in 1936, assistant works manager in 1941, and vice-president in charge of street lighting in 1948. He was a past president of the Central Ohio Society of Professional Engineers and a member of the National Society of Professional Engineers. An authority in the field of street lighting, he was an active member of the Illuminating Engineering Society Committee on Street and Highway Lighting, and a valued contributor to the work in this field of THE AMERICAN CITY.

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any Maintenance required with Adlake Mercury Relays!

Yes, thanks to their positive, leak-proof sealing . . . their sure-fire mercury-to-mercury contact . . . their immunity to normal vibrations and temperature changes . . . thousands of satisfied users in every branch of industry can testify that ADLAKE Relays literally require no maintenance whatever!

ADLAKE Relays have won their place by *proven dependability*—year in and year out—in jobs that conventional relays can do in an uncertain manner at best! For every ADLAKE Relay is tested—and guaranteed—to meet specifications!

Yes, in chick incubators or diesel locomotives—wherever sensitivity and dependability are required—you can always count on ADLAKE! Send for complete Relay catalog today . . . write The Adams & Westlake Company, 1176 N. Michigan, Elkhart, Indiana. In Canada, write Powerlite Devices, Ltd., Toronto.

Every ADLAKE Relay is tested... *and guaranteed*...to meet specifications!

Type 1040 ADLAKE Time Delay Relay . . . contact normally open

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Collection Systems

for municipal parking areas

By BENJAMIN COOPER
President
Taller & Cooper, Inc.
Brooklyn, N. Y.

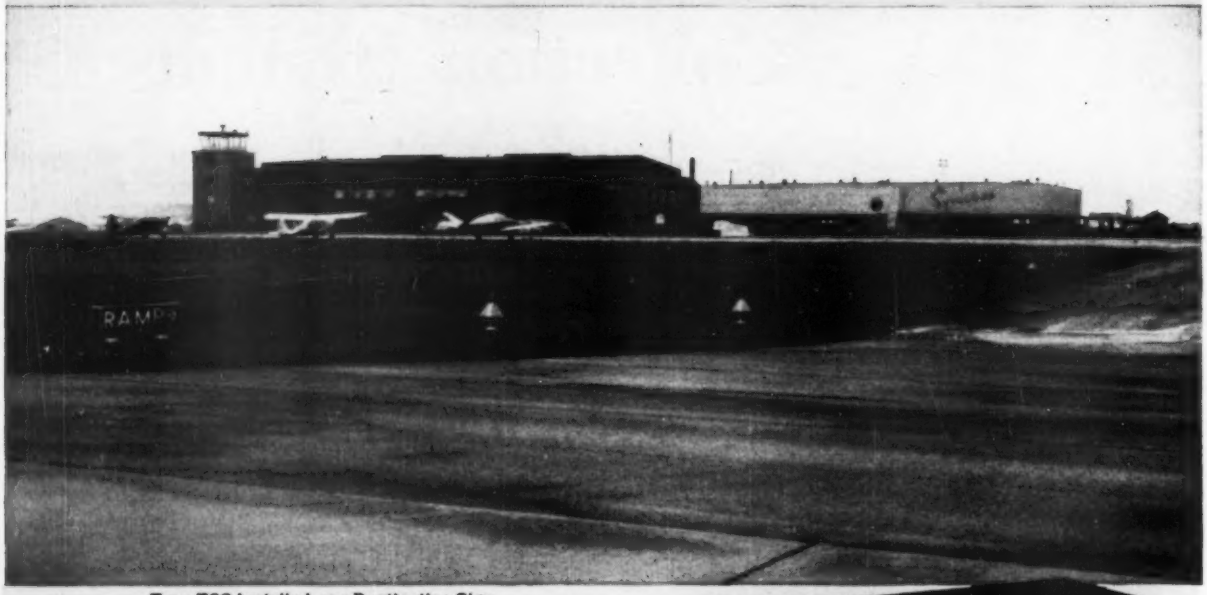
MORE AND MORE CITIES are giving thought to providing long-time parking facilities outside the business district, and on a larger scale than hitherto contemplated. It is being recognized that parking is not an isolated operation but an element of the total traffic problem. In fact, to an important degree parking is a cause of traffic congestion.

This is particularly the case with commuter parking. Thousands of

New York City's Flushing Meadows parking area. The plaza of three booths is shown in the insert.

Speed up traffic on YOUR airport with

CROUSE-HINDS Taxi Guidance Signs



Type TGS Installed as a Destination Sign

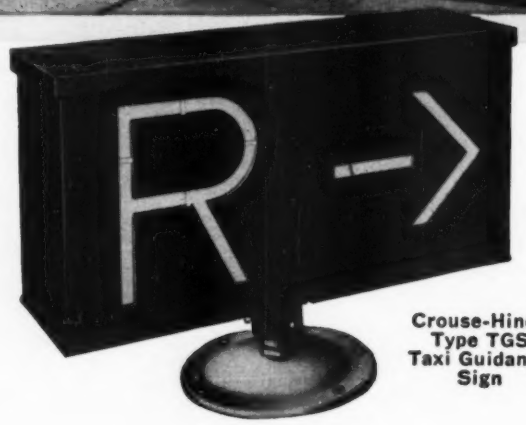
Release tower operators from a "traffic policeman's" duties . . . night and day.

The use of Crouse-Hinds Type TGS Taxi Guidance Signs provides a system of taxiway guidance that shows the pilot his location at each intersection and tells him exactly how to reach his destination. This relieves the tower operator of most of the work of directing ground traffic and leaves him free to concentrate on his real job . . . . directing airborne traffic.

The layout of a sign system should conform to CAA Technical Order TSO-N23. Destination signs are placed on the far side of an intersection, showing a destination symbol and an arrow. Intersection signs are placed on the near side of an intersection, showing numbers to identify runways or letters to identify taxiways.

The sign replaces the "entrance-exit" light which is normally at the start of a line of taxi lights. *An existing taxi light can be easily converted to a guidance sign.*

The housing is of lightweight, aluminum, box-type construction, mounted on one or more breakable couplings, all in accordance with CAA Specification L-829. Each number or symbol is in a 14-inch square interchangeable cast aluminum panel. The numbers are made with an orange-yellow plastic on a black background that gives excellent legibility in the daytime or when lighted at night. Signs vary in length from one to six sections. Each section is detachable so signs are easily converted from one size to another.



Crouse-Hinds Type TGS Taxi Guidance Sign

These signs are built to Crouse-Hinds high standard of quality . . . to give years of dependable service.

Now is the time to plan the installation of a taxi guidance system for your airport. Send for additional information.

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people drive into the business district at about the same time in the morning, park, and drive out at about the same time in the late afternoon and early evening. If these people park their cars outside the business district and, in large cities, take public transit to the business district, congestion would largely disappear in business districts. In small cities with compact business districts, the walk would be short from the cars parked outside the district.

This objective can best be achieved by providing parking lots of ample size, accessibility, and convenience, which are a credit and an asset to the municipality.

Another type of municipal parking facility, which cannot be overlooked because it already exists in so many cities, is the parking lot in the heart of the business district. These lots serve commercial and shopping areas, theaters and hotels, and cater both to long-time and short-time parkers. Another type of out-district parking is that provided at beaches and parks.

In planning a collection system for unmetered lots, it should be remembered that the attendants working in the area have to be protected from daily and seasonal variations in weather, as well as from accidents by colliding vehicles. A modern, comfortable, and efficient booth, which can also house the revenue-control machines and fare tickets, should be chosen. The basic factors to consider in planning the revenue schedule for a parking area are:

1. A basis of charging: whether by the hour or on a daily, weekly, or a monthly flat-rate basis.
2. A system of collection that safeguards the facility from fraud on the part of employees or motorists.

Basis of Charging

Charges may be made either at a flat rate, or according to the interval of time the vehicle remains in the area. A flat rate works best in parking areas used primarily by daily visitors to zoos, parks, beaches, and other municipal attractions, or by workers who park for the business day. The parking areas at Bronx Park and at Flushing Meadows, in New York City, are examples of this method. This may also be the way to handle commuter parking.

In most other cases, the time-interval rate seems more feasible, especially for areas where there is a great deal of short-period parking.

A standard charge may be set for each hour the vehicle remains in the area, or there may be a higher rate for the first hour than for succeeding hours. If the area is in a section where business varies considerably at different times of day (such as a theater or entertainment district), rates may be made higher during the hours of peak business and lower during slack periods.

Experience at toll facilities, including bridges, highway, and tunnels, in addition to parking areas, has shown that strict precautions must always be taken against fraudulent practices on the part of toll collectors. In all probability, toll collectors are as honest as any other group of people. Yet, the fact that they handle large sums of money provides strong temptations to those who are not incorruptible.

BENJAMIN COOPER, president of Taller & Company, Inc., of Brooklyn, N. Y., is one of the foremost authorities in the country on toll-collection systems. He has designed booths and collection systems for many toll facilities and parking areas, including such well-known installations as the New Jersey Turnpike and the New York State Thruway.

Unless the collection system eliminates dishonesty, the parking area may become a source of illicit revenue for unscrupulous attendants, rather than an efficient and profitable extension of municipal services. This problem cannot be shrugged off, for studies have shown that a substantial percentage of total receipts can be stolen by dishonest employees if safeguards are not set up. In addition, care must be taken to prevent individual motorists from trying to evade payment of charges.

The best form of protection is an accurate and reliable record of the number of vehicles using the facility and, if a time-interval charge is used, the length of time each remained in the area.

The collection system also should allow cars to enter and leave with the least possible delay. And, as a final consideration, the system should require few men for its efficient operation.

All that is needed for a flat-rate system is an accurate count of the number of vehicles entering and leaving, as it is upon this that the charges are based. Coin-hand registers, or numbered tickets, which are used in some parking lots, do not really give a count of the vehicles. They show only the amount of money put in the register, or the number of tickets given out and received. If the attendant is dishonest there are many obvious ways in which he can divert money to his own pocket.

An axle-counting treadle, which is a heavy rubber pad embedded in the exit and entrance driveways at right angles to the flow of traffic, provides the best method of obtaining accurate vehicle counts. A positive and tamperproof device serving this purpose contains four electrical contacts in the treadle which records a count every time a pair of wheels (an "axle") move over it. The treadle circuit also operates a printing counter, which makes a print each time a collector goes on or off duty. In this way it furnishes a permanent, reliable record of the number of cars using the facility.

Neither a hand register nor numbered tickets is needed in a flat-rate system when a treadle is used. All the attendant has to do is collect the money from the drivers. The treadle records the number of vehicles, and thus indicates how much money should be turned in.

Time-Interval System

While operation of a flat-rate system only requires a count of the cars using the parking area, a time-interval system requires, in addition, a record of how long each vehicle remains in the area.

The number of cars entering and leaving can be recorded by an axle-counting treadle, as in a flat-rate system. Determination of the charge for each vehicle on a time basis can be accomplished by using time tickets with serial numbers in conjunction with a time-stamping machine.

An entering car first rides over the treadle, which records a count of two axles. The attendant issues the driver a ticket containing a serial number after first inserting it in the time-stamping machine, which prints the correct hour and minute of issuance.

On leaving, the driver surrenders his ticket to the attendant at the exit driveway. It is inserted in the time-stamping machine, which again prints the correct hour and minute. The attendant's identification number can also be printed at this time, to identify the man making the transaction in case there are several attendants working at the area. The proper fee can then readily be com-

(*Continued on page* 149)

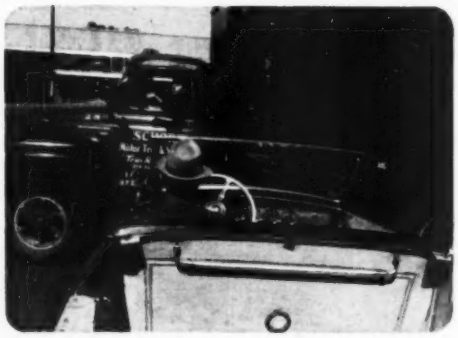
When transit has room to "go to town," people get faster, more convenient service

Until transit vehicles have freedom of movement on city streets that makes possible faster, more convenient service, they will not be able to play a completely effective role in reducing traffic congestion and parking problems.

To achieve this, there should first be support from community leaders for certain vital measures:

- Eliminate parking, stopping and on-street loading and unloading of vehicles wherever and whenever it reduces transit speeds.
- Eliminate left-hand turns in congested areas, and right-hand turns across the front of transit vehicles at stopping points.
- Regulate traffic and signal arrangements to enhance transit speeds, and, in some cases, it may even be desirable to devote certain lanes exclusively to transit, providing the same freedom of movement given to fire trucks and ambulances.

These steps, which benefit everybody—riders, businessmen, community leaders, even those who *must* drive—are vital to the growth and well-being of cities, both today and tomorrow. General Electric Company, Schenectady, N. Y. 107-16



IS YOUR CITY "GOING PLACES"?

General Electric's new 16-mm, 17-minute, documentary film, "Going Places," can help you tell the public of transit's role in relieving traffic congestion and parking problems. To arrange for a showing, or to obtain prints for your own local programs aimed at relieving traffic congestion, contact your G-E Apparatus Sales Office.

You can put your confidence in—

GENERAL ELECTRIC

Eighteen years ago the MI-CO Manual Parking Meter was introduced. Right from the outset this meter performed so well it was considered the outstanding parking meter in its class. MI-CO Manuals have enjoyed this distinction ever since, and today the greatly improved MI-CO Manual is still tops in its field.

The MI-CO Twin Automatic is *the original time-tested twin parking meter.* It, too, was the pioneer in its class. The engineers who developed it went far beyond the obvious—putting two meter heads together on a single standard—they actually designed a *twin parking meter* with two complete elements enclosed in a single, streamlined, attractive housing. One look at the MI-CO Automatic Twin, and a study of its performance records is convincing proof that it is the outstanding meter in its class.

Both MI-CO Parking Meters are designed to meet specific requirements—both have excellent records for dependable service, high earnings, and low maintenance. And when you compare MI-CO records—manual or twin—with those of other makes, we believe you will agree that MI-CO's are by all odds your best parking meter buy. We'll be glad to send facts and figures on many installations throughout this country and Canada.

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Bank Screens and Partitions • Bronze and Aluminum Doors • Elevator Doors • Store Fronts • Lettering • Check Desks (standing and wall) • Lamp Standards • Marquises • Tablets and Signs • Name Plates • Astragals (adjustable) • Stair Railings • Grilles and Wickets • Kick and Push Plates • Push Bars • Cast and Extruded Thresholds • MI-CO Parking Meters • Museum Trophy Cases • Interment Urns

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Division of The Michaels Art Bronze Co., Inc.

BEELINE BRAND Reflective Striping Compound ready for traffic in fifteen minutes!

NO SMEARING . . . no long traffic tie-ups! This new improved pavement marking material dries faster, costs less . . . yet meets most rigid durability requirements. Apply with standard equipment. Order from your regular supplier.

Made in U.S.A. by Minnesota Mining & Mfg. Co., St. Paul 6, Minn.—also makers of "Scotch" Brand Pressure-Sensitive Tapes, "Scotch" Sound Recording Tape, "Underseal" Rubberized Coating, "Scotchlite" Reflective Sheeting, "Safety-Walk" Non-slip Surfacing, "3M" Abrasives, "3M" Adhesives. General Export: 122 E. 42nd St., New York 17, N.Y. In Canada: London, Ont., Can.

puted and collected from the motorist. As the vehicle leaves, it rides over the exit treadle and is recorded.

The money collected has to tally with the amount indicated by the total time difference on all the cards. In addition, the entrance-treadle count can be checked against the number of cards issued to entering vehicles, while the exit-treadle count can be checked against the number of cards received from departing vehicles. In this manner, the facility is completely protected against evasive or dishonest practices on the part of either motorists or attendants.

Where both entrance and exit traffic lanes are located adjacent to each other, only one attendant, working with one time-stamping machine, is needed. The treadle in each lane records not only a car's passage, but also its direction, so that a distinction is made in the records between entering and departing cars and any passage of vehicles against normal operation is evident and must be explained by the collector.

If entrance and exit lanes are widely separated, one attendant will still suffice if an automatic ticket-issuing machine is used in the entrance driveway. This machine is automatically controlled by a treadle. The ticket is issued only after two axles have passed over the treadle and a button is pressed by the motorist. An alarm rigs if a motorist fails to take a ticket.

If it is decided not to use this automatic device, one collector, along with a treadle and a time-stamping machine, is required for each entrance and exit lane when such lanes are located at a distance from each other.

Within the next few years, many more localities are expected to construct and operate large-scale parking areas. This is a progressive step, for parking areas like other municipal facilities should be planned and operated with efficiency, accuracy, and safety. Local traffic and business conditions should be studied, and the method of charging and the size of the fee should reflect these conditions. A dependable system of collection can be worked out to fit specific requirements of any parking area.

Standard Traffic Signs for All the World

TRAFFIC SIGNALS and pavement markings are reasonably standardized throughout Europe and America. Traffic signs, because of their large number and the heavy investment in them, have been slower to standardize. The effort has been going forward in both hemispheres, for 27 years in Europe, and for 28 years in the United States.

The basic difference in signs in the two hemispheres are in shape and color, and in the fact that Europe's signs are predominantly symbols or pictures while America's are

I'M STANDING PAT WITH PRISMO

BECAUSE IT'S A WINNER EVERY TIME

Every day, more highway departments are swinging to the belief that it's not worth the gamble to put down inferior, untested reflective markings on their roads and streets. Stakes are high where human lives are involved and you have a feeling of confidence when Prismo is your ace-in-the-hole for safety. Prismo's pioneering and acknowledged leadership for fifteen years in the field of reflective marking makes it the one sure winner every time.

PRISMO HAS A FULL HOUSE OF FEATURES

Prismo's many exclusive advantages over ordinary traffic paint make it the natural choice of traffic engineers from coast to coast. *It will outwear ordinary paints many times, and its initial cost is low.* It's easy to apply and goes to work immediately with unmatched brilliance. "Moisture-Proof" striping and Prismo's other exclusive features are your assurance of greater safety and longer dependability.

"NOTHING EQUALS PRISMO... BUT PRISMO"

PRISMO SAFETY CORPORATION

HUNTINGDON, PENNSYLVANIA

words. Literacy and a single language in North America permit the use of words—"men working" instead of a picture of a man lifting a full shovel. In Europe and America the shapes of signs are, respectively: for danger, triangular and diamond-shaped; regulatory signs, round and rectangular. European warning and regulatory signs have wide colored borders, whereas the American warning signs are yellow and the regulatory signs are white with black letters.

Can a Single Flexible Standard Be Adopted?

A group of experts on road signs and symbols, appointed by the Transport and Communications Commission of the United Nations, met in 1950, 1951, and 1952 to survey existing systems and explore possibilities of compromise. It was decided that each member of the group would carry out a series of visibility and legibility tests on a selected set of alternative designs for warning signs. Four standard European warning signs were chosen, together with their counterparts in standard American, and the standard Central and Southern African designs. Each design was duplicated in both European and American colors.

These 24 signs were tested under actual driving conditions at 50 miles per hour, and with a wide variety of weather, lighting, and roadside backgrounds. Inevitably the tests showed the superior legibility of symbols as compared to "inscriptions." Yellow signs with black symbols seemed best by a small margin, and the most effective symbols were those of bold design, distinctive outline, and substantial area.

Warning Signs

At its third and last session, the group of experts was able to agree on a proposed "Convention on a Uniform System of Road Signs and Signals," which it offered to the United Nations Transport and Communications Commission as a part of its final report, with a recommendation that it be adopted by all countries.

For danger-warning signs the convention proposes the yellow background of the present American Standard. Sign shapes are given three options to permit the use of the European triangle, the American diamond, or the Central and Southern African triangle-rectangle combination. For various types of danger the convention proposes about 30 symbols, all of a pictorial or diagrammatic type. The symbols for curves and intersections were taken directly out of the American Standard *Manual on Uniform Traffic Control Devices*, and the other symbols, if not all immediately self-explanatory, should be easy to understand. Thus, many American warning signs are already in complete accord with the proposed United Nations standard. For perhaps a dozen of our present word-message signs, the convention would call for a substitution of symbols. Where no symbol is proposed, word messages would continue to be used.

The accompanying illustration shows a number of the proposed United Nations warning signs, each compared with the corresponding sign in the current American Standard. Included are several regulatory signs, both restrictive and prohibitory, as they might be designed for American use, together with the comparable signs in the present American Standard. Actually, the symbols alone would convey the message in the international code.

Yellow Octagon Agreed Upon for "Stop" Sign

Because the most extensive use of the "STOP" sign has been in this country, and because the American sign is distinctive and effective, the group of experts agreed on the yellow octagon for this sign, with the word "STOP," or its equivalent, in the local language. This was the only sign for which a word message was recommended. The proposed new design is shown with the old.

Little difficulty was found in setting up general standards for directional and informational signs. As these are used only for guidance, detailed uniformity is less essential than it is for the other classes of signs.

Proposed Convention

The proposed convention provides that the new system is to be applied "as soon as practical, and gradually if necessary." The convention would enter into force 15 months after its ratification by any five countries, and for additional countries 15 months after its ratification by each.

The proposed convention has been approved by the Transport and Communications Commission of the United Nations, with the recommendation that it be submitted to the member nations for ratification in its present form. The United Nations Economic and Social Council, however, with which the final decision rests, has postponed action for another year, during which time the Secretary-General will ascertain from the several nations whether they are ready to ratify the document as it stands, or whether it should first be considered by an international conference called for the purpose.

EDITORIAL NOTE: This article is taken from "International Signs for World's Traffic," by H. E. Hilts, Deputy Commissioner, U. S. Bureau of Public Roads, which appears in *Standardization* for August 1953.

Birmingham Police Reorganization

THE CITY COMMISSION of Birmingham, Ala., has appointed Colonel Paul L. Singer (U. S. Army Ret.) to the newly created and temporary position of Director of Police. This unusual measure was taken at the request of Public Safety Commissioner Robert Lindbergh for the purpose of reorganizing the Police Department and re-establishing public confidence. Commissioner Lindbergh said that he felt an outsider of wide experience would be able to make the necessary changes in the Police Department.

By mutual agreement between Col. Singer and the Birmingham City Commission, this appointment will be for one year and will not be renewed. By that time, Commissioner Lindbergh feels that a chief of police can be appointed through normal civil-service procedure.

NANCY HUDDLESTON
Birmingham's Committee of 100
1914 Sixth Ave., North
Birmingham, Ala.

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3. **WEATHERPROOF HEAD...** With handy work-shelf door.
4. **SUPERIOR DESIGN...** Discourages cruising; time indicator visible only from sidewalk side.
5. **ON-THE-STREET TIME-AND-COIN CONVERSION...** To meet changing traffic conditions.

✓ **EASY TO PATROL AND OPERATE...** Observation window shows slug or tampering at a glance. No levers to move.

Single head and Dubl Dual meters have the same efficient automatic mechanisms—one in the single head; two independent mechanisms in the Dubl Dual.

✓...Duals are easier to operate and enforce

SIMPLICITY of operation and patrol are two important reasons why Dual Automatic *Gearshift* Parking Meters are popular with leading traffic engineers everywhere.

The motorist simply deposits a coin and Dual meters do the rest . . . no handles, levers or plungers to turn, pull or push. Shoppers especially appreciate this automatic feature.

Traffic departments in Dual cities have their own reasons for liking Dual meters. 1) Slugs or tampering can be detected at a glance. 2) Cruising is discouraged because the time dial is visible only on the sidewalk side. This feature alone builds revenue. 3) The bold red expired flag can be seen at a glance by the patrolling officer. 4) Dual meters are built to give longer, trouble-free service. 5) Time and coin changes can be made on the street as traffic conditions warrant.

Before you install any meter, weigh these Dual advantages. And learn about the specialized service available to every Dual-equipped city. Whether you choose the popular Dual single head or the new Dubl Dual . . . you'll get the precision built meter that's setting the pace in parking service and efficiency. Write today for Bulletin DU-521 for on-street parking; Bulletin DU-522 for off-street parking.

THE DUAL PARKING METER COMPANY

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Canton 2, Ohio

not so vague as to constitute an unlawful delegation of legislative power. In addition to a number of minor points, the opinion specifically held that bonds issued under the 1947 slum clearance act could be used in connection with this program, again on the ground that construction of housing on vacant land was an important element in an effective slum clearance program. The Chief Justice dissented, on the ground that the relationship between such vacant-land redevelopment and slum clearance was too tenuous to satisfy either requirement—i.e., a single subject for a single piece of legislation, or the conditions limiting use of funds derived from the bonds.*

The Ohio Cases

In the first Ohio case, the state Court—as usual—split, five to two, on the question of tax exemption for public housing projects in that state. Five members of the Ohio Supreme Court thought that public housing projects were not in fact public property used *exclusively* for a public purpose under the Ohio Constitution, and therefore that a legislative declaration to that effect was unconstitutional. However, as in the previous cases,† two members of the Ohio Supreme Court disagreed. Since in Ohio no law can be declared to violate the state constitution if more than one judge dissents, no decision of invalidity was possible. Since the legislature had amended the law to declare explicitly that public housing projects were used exclusively for a public purpose, no adverse decision was possible on a statutory basis either. In effect, then, public housing projects in Ohio are exempt from local taxes, as required under the federal statutes governing such projects—thus ending the long legal struggle on that point.‡

In the second Ohio case, the Court held, by a vote of 6 to 1, that redevelopment of slum areas in the state, by public condemnation and demolition and by subsequent rebuilding, was constitutional, and that both eminent domain and spending public funds were justified. Although this case was apparently clearly a friendly suit among city officials, the Court decided to pass on the issue, since it involved a matter of general public interest. The Court reviewed the large number of favorable holdings in other states, and held that condemnation of such land was for a public use. The opinion contains a striking analysis of the history of the public-use doctrine in the Ohio state constitution. According to this analysis, in Ohio this phrase has historically been equivalent to "public welfare," and therefore that is the only constitutional test of the proper purposes of eminent domain in that state. The requirement that proceedings shall be *"exclusively"* for a public purpose—which caused years of litigation and confusion in connection with public housing (terminating in the case above)—does not appear in the constitutional provisions applying to eminent domain proceedings in Ohio.

The resulting situation is somewhat ironical. In the only state where the public housing program ran into serious constitutional trouble—and where in fact it was saved only by a state constitutional provision preventing judgments of constitutional invalidity if two judges disagreed with that conclusion—the urban-redevelopment program was promptly upheld. Redevelopment usually raises somewhat more serious constitutional questions, since it usually involves taking A's property and (after clearance) rebuilding, not by a public agency, but after reselling it to B. The latter is of course the classic situation for serious constitutional problems in eminent domain.

The New York Litigation

A substantial volume of litigation has been started to challenge various types of redevelopment projects in New York City, and three of these cases appear above. The *Hunter* case involved an attempt to challenge several of the Title I redevelopment projects in that City, on the ground that the housing shortage in New York is so acute that it will be impossible to provide satisfactory relocation facilities (as required by the statute), particularly in view of the racial composition of many of the families to be displaced. In dismissing the complaint, the Court's decision was based upon a determination that the plaintiffs, who were site tenants to be displaced in the redevelopment area, did not have legal standing to raise the question in court, since state courts could not review the propriety of decisions made by the federal officials supervising the housing program in Washington. The Court held that the plaintiffs did not have the status of a third-party beneficiary under New York contract law, and that if it had been intended that they should have a right to bring such a suit, Congress would have specifically authorized them to do so. The proper forum to raise the question was held to be with the federal authorities.

In the *Kaskel* case, a property owner within the area designated for the Columbus Circle Title I redevelopment project—involving a new auditorium plus housing renting at about $43 per room per month—sued to challenge the constitutionality of the proceedings, and argued further (a) that the area was not substandard and insanitary, and (b) that the redevelopment was not predominantly residential. Expert testimony was presented on the quality of housing in the area. The Court dismissed the complaint.

In this case the Court held that, since there was a conflict of evidence on whether the area was slum, the City officials' determination in this regard would be respected, and the Court would not substitute its own judgment. As for the argument that the redevelopment plan violated the National Housing Act of 1949 because it did not provide for predominantly residential redevelopment,* the Court held that this question could only be raised with the federal administration, and not in court. Turning to the city's right under the New York statute to contribute one-third of the write-down in land cost, the Court held that there was no requirement here that redevelopment should be for predominantly residential purposes.

In the *Harlem* case, property owners challenged the condemnation on the ground that part of the redevelopment plan involved taking commercial property and redeveloping it for shopping, in stores separate from the residential buildings, and that this would not be part of the residential redevelopment project. The Court held that the commercial redevelopment was "necessary for and incidental to" the clearance and rehabilitation project and so upheld the condemnation.

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* Actually, with the area allocated to accessory parking for the apartment buildings counted into the area for residential redevelopment, the latter would be about 53% of the net site area.

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* The entire Court reached this result in an earlier (and unpublished) opinion in this case, presumably on these agreements.

† Columbus Metropolitan Housing Authority v. Thatcher, 140 Ohio State 38, 42 North Eastern (2d) 437; Dayton Metropolitan Housing Authority v. Evatt, 143 Ohio State 10, 53 North Eastern (2d) 896.

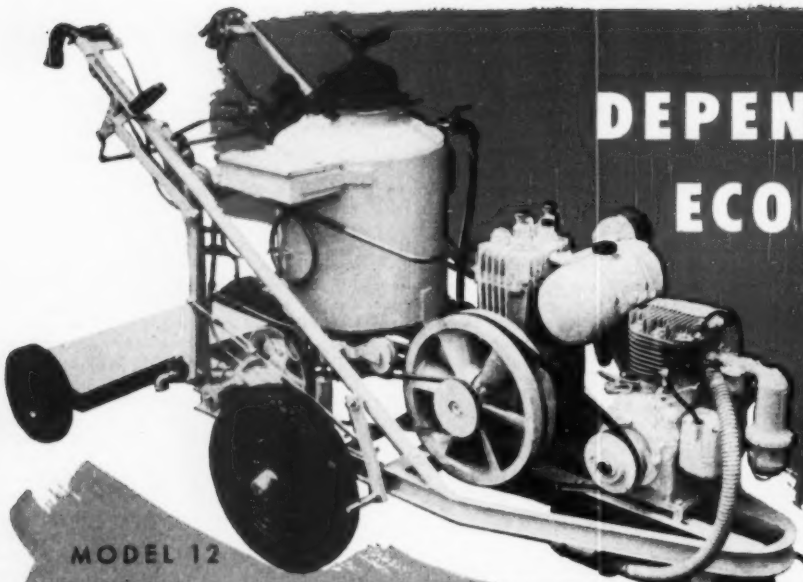
‡ For those interested in this controversy, reference is made to an excellent article, published in 1943; MacDougal and Mueller, Public Purpose in Public Housing: An Anachronism Reburied, 52 Yale Law Journal 42.

Zoning Regulations for Vacant Land Validated by Enabling Act

NEW JERSEY. *Lappas* v. *Board of Adjustment of Borough of Westwood*, 93 Atlantic (2d) 406 (Superior Court, December 15, 1952).

In this case the local authorities, in accordance with the local zoning regulations, refused to permit vacant land in a residence district to be used for a parking lot. It appeared that the owner had been granted a variance to operate a parking lot on the adjacent lot, and that he had then purchased this second lot and removed the existing dwelling located thereon. The owner took this case to Court, arguing that the local zoning ordinance was adopted under the old New Jersey constitution and zoning enabling act, and that at that time zoning regulations could not constitutionally regulate the use of vacant land. It was admitted that vacant land could be regulated under the present constitution and enabling act. The courts rejected the owner's argument.

In the opinion, it was noted that, before the 1947 constitution, there was an apparent split of authority on whether vacant land could validly be regulated by zoning ordinances. However, even on the assumption that the local zoning regulations affecting vacant land were not legally authorized before 1947, it was held that these were "at worst inoperative and unenforceable," and that passage of the new constitution and enabling act "had cured any previously existing defect in the municipality's regulation of the use of vacant land"—and that, therefore, there was no need for the municipality to go through the motions of reinitiating such zoning regulation. It was also noted that the owner purchased the land and removed the existing dwelling with notice of the existing residential zoning restrictions.



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MODEL 8

This amazingly versatile new Striper is the answer to *all* traffic marking in small towns and cities. Specially built for easy, simplified operation — with most of the advanced engineering features found in the larger Model 12.

The most *efficient* Striper on the market today! Traffic engineers the country over rely on the superior design of the "REFLECTO-LINER" to save time and money, give dependable, long-lasting performance. This machine handles *all* modern marking materials with ease. An air supply of *100% reserve* is constantly maintained during operations, without burdening compressor or motor. Added to this reserve capacity are the important advantages of channel and tubular steel construction, anti-friction wheel bearings, a high-speed motor, high-capacity "Nu-Matic" spray gun . . . advanced engineering throughout! Make the "REFLECTO-LINER" *your* choice.

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Prepared by NATIONAL INSTITUTE OF MUNICIPAL LAW OFFICERS
Charles S. Rhyne, General Counsel

Bingo and Keno—Lotteries—Ordinance Upheld

In action by charitable organization to enjoin city from arresting and prosecuting officers, employees, and members of organizations for engaging in business of conducting bingo and keno games, held that games violated both valid statute and ordinance prohibiting lotteries, and equity court would not grant injunction to assist law violators. *Wishing Well Club, Inc.*, v. *City of Akron*, 112 N. E. (2d) 41 (Ohio Comm. Pleas, Summit Cty, June 30, 1953).

Bingo—Chairman Charitable Fund-Raising Group No Standing to Challenge Laws

Where chairman of group raising funds for charitable hospital sought declaratory judgment as to legality of bingo games not carried on for profit, and evidence showed that he had no interest in operating games, nor had city threatened to arrest him for violation of lottery statute, the constitutionality of which he did not question, held that court would not entertain action for declaratory judgment as to legality of bingo. *Zepp* v. *City of Columbus*, 112 N. E. (2d) 46 (Ohio Comm. Pleas, Franklin County, Dec. 20, 1951).

Bridge Donated to City—Duty to Maintain

In action to compel city to replace a washed out footbridge which city had acquired under contract requiring city to maintain, held that since bridge had become a part of street system that city must replace even though original contract was invalid. *Herbert* v. *City of Richland Center*, 58 N. W. (2d) 461 (Wisc., May 5, 1953).

Building Permits—Issuance or Refusal Governmental Function

Where city condemned uncompleted apartment building owned by plaintiff and thereafter refused to issue her a building permit or grant her a reasonable time within which to repair the structure so as to meet city building regulations, held that granting or withholding building permit was exercise of governmental function for which city could be held liable in tort. *Akin* v. *City of Miami*, 65 So. (2d) 54 (Fla., April 28, 1953).

Censorship of Movies—State Statute Upheld

In action against state contesting constitutionality of moving picture censorship statutes, held that statutes giving board of censors power to censor films prior to public exhibition and approve only such films as are, in its judgment, of a moral, educational, or amusing and harmless character were not unconstitutional either as delegation of legislative power or a violation of guarantee of freedom of speech and press of state and federal constitutions. *Superior Films Inc.*, v. *Department of Education, Division of Film Censorship* (three cases), 112 N. E. (2d) 311 (Ohio, April 29, 1953).

City Pier—Death of Worker on—City Not Liable

In action against city for death of longshoreman who slipped on inclined ramp of city pier and was drowned, held that the city was not liable since longshoreman knew of danger and assumed risk. *Franklin* v. *City of Galveston*, 256 S. W. (2d) 997 (Tex. Civ. App., Mar. 29, 1953). *Reh. den.* April 16, 1953.

City-State—City Tax Foreclosure on State Land

In action in rem by city to foreclose unpaid tax liens affecting lots to which state had title, held that law declaring all sales of state lands for unpaid taxes or assessments for local improvements to be void, being later statute than that under which city purported to act, must prevail, and precluded foreclosure by city. *In re Foreclosure of Tax Liens, Borough of Queens, City of New York*, 121 N. Y. S. (2d) 283 (N. Y. Sup. Ct. Queens Cty., April 9, 1953).

Civil Rights—Teachers Suit Under Federal Act Against City and its Officials—Cause of Action

In action by school teachers against the City of Malden, Mass., and its officials alleging deprivation of salaries to which they were entitled, and conspiracy acting under color of law to impair their contracts for teaching, held that complaint did not state cause of action against city, but did state a cause of action against mayor, and members of board of aldermen, and common council individually within federal jurisdiction for a wrong under the Federal Civil Rights Act. *Cobb* v. *City of Malden et al.*, 202 F. (2d) 701 (U. S. C. A., 1st Cir., March 13, 1953).

Competitive Bidding—Lease of City Realty with Restaurant Thereon Does Not Require Bids

Where city of Miami leased city realty containing restaurant facilities for five years at an annual rental in excess of $5,000 without advertising for and receiving bids and awarding lease to highest bidder, held that ordinance requiring competitive bidding was intended to require competitive bidding where money was expended for public improvements or purchases, and, therefore, competitive bidding was not required before city could grant lease of city realty. *Mahoney* v. *Givens*, 64 So. (2d) 926 (Fla., May 5, 1953).

Franchise and Gross Receipts Taxes—Assessments on Railway by State for Use of City Street Upheld

In action by street railway against state contesting validity of assessments for franchise and gross receipts taxes for use of street in Atlantic City, on ground street was owned by company, in which cities receiving share of taxes were party to action, held that street was not private property of railway but a public street or public place within statute, and, therefore, assessments were valid. *Atlantic City Transp. Co.* v. *Director, Division of Taxation*, 94 Atl. (2d) 895 (N. J., Mar. 9, 1953).

Parks—Boy Injured by Climbing Wall—City Not Liable

In action against city for injuries to 11 year old boy who departed from walks provided in city park and climbed four foot wall and gained access to ventilator shaft screen which has 20 inch hole through which boy crawled and suffered injuries, held that plaintiffs petition was insufficient to state cause of action predicated upon either nuisance or negligence. *Ware* v. *City of Cincinnati*, 111 N.E. (2d) 401 (Ohio App., Jan. 28, 1952).

Peddlers—Veterans—Ordinance Prohibiting in Business District Void

In action by war veterans to enjoin city of Newark from enforcing ordinance prohibiting peddling in main business area of city, held that ordinance conflicted with statute granting all war veterans the right to peddle throughout state and was therefore invalid. *Germano v. Keenan*, 95 Atl. (2d) 439 (N. J. Super Ct., Mar. 3, 1953).

Taxation—Gross Receipts On Utility

In action against city for declaratory judgment respecting application of license tax imposed on utility's gross receipts derived from intra-city sales to monies held by company subject to repayment to customers after termination of gas-rate proceedings, held that lower court erred in holding tax applicable, for sums retained were not "gross receipts" as used in ordinance as company did not have beneficial use of such monies. *Laclede Gas Co. et al.* v. *City of St. Louis*, 253 S. W. (2d) 832 (Mo., Jan. 9, 1953).

Transit System—Restoration of Schedules—Mandamus

In mandamus by city to compel street-railway company to restore schedules and service as directed by council order, held that judgment for mandamus on pleadings was erroneous as company's answer alleged facts pertaining to reasonableness of council's order under present conditions, which should have to be determined on evidence. *State ex rel. City of Minneapolis* v. *Minneapolis St. Ry. Co.* 56 N. W. (2d) 564 (Minn., Dec. 26, 1952) *Reh. Den.* Jan. 13, 1953.

Veterans—Civil Service Preference

In certiorari by non-veteran policemen to quash ruling of civil service director granting two-point preference to veterans taking police captaincy examination, held that petitions be dismissed, for rule concerning granting preference to veterans found capable through examination was not unconstitutional discrimination between veterans and non-veterans, and fact that there may be some slight difference between original and promotional examinations was too fine for basis of constitutional line between the two preferences. *McNamara et al.* v. *Director of Civil Service*, 110 N. E. (2d) 840 (Mass., Feb. 27, 1953).

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GENERAL ELECTRIC

Recent City Manager Appointments

Robert Palmer
Elmhurst, Ill.

Raymond E. Harbough
Wood River, Ill.

Frederick E. Wegner
Roseville, Mich.

Robert A. Finlayson
Eugene, Ore.

R. Powell Black
Athens, Tenn.

ERWIN C. BRANDON, JR., former manager of Burlington, N. C., was appointed the first manager of Madeira Beach, Fla.

Osborne, Pa., appointed CHARLES A. COOPER, a former engineer, as city manager to succeed John A. Bailey.

The former assistant city attorney, J. LUTHER DAVIS, was appointed city manager of Tucson, Ariz., suceeding D. P. Wolfer.

CLARENCE F. DEEM left the managership of Dormont, Pa., to succeed Earl E. Gallagher as city manager of West View, Pa.

Park Ridge, Ill., appointed the former manager of Marshall, Mo., JAMES L. GALLOWAY, to succeed DeSoto B. McCabe as city manager.

J. FLOYD GLISSON, former manager of Titusville, Fla., was appointed city manager of Fernandina Beach, Fla., to succeed S. G. Backman.

Succeeding George Meholick, Jr., as city manager of Wakefield, Mich., is the former manager of Stambaugh, Mich., LEONARD J. HARRIS.

Edinburg, Texas, appointed the former assistant manager, JAMES W. HARRISON, city manager, succeeding Louis C. Kolenda.

Nowata, Okla., appointed G. F. HILL, the former manager of Granite, Okla., to succeed Ralph R. Johnson as city manager.

The first manager of Evanston, Ill., is BERT W. JOHNSON, former manager of Boulder, Colo.

CECIL O. LANCASTER left the managership of Hartland, Maine, to succeed Leonard L. Bishop, Jr., as city manager of Wells, Maine.

ROBERT P. MCLAUGHLIN, a former student, was appointed city manager of Boothbay, Maine, succeeding Preston C. King.

El Centro, Calif., appointed LEONARD MCCLINTOCK, former manager of Martinez, Calif., as its first city manager.

The former manager of Smyrna, Del., STANFORD C. MARVEL, was appointed city manager of Milford, Del., to succeed Harry P. Bressler.

CLARENCE E. RIDLEY
Executive Director
International City Managers' Association

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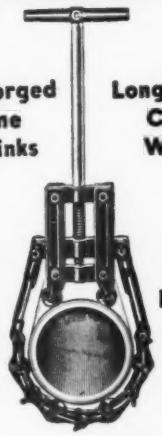

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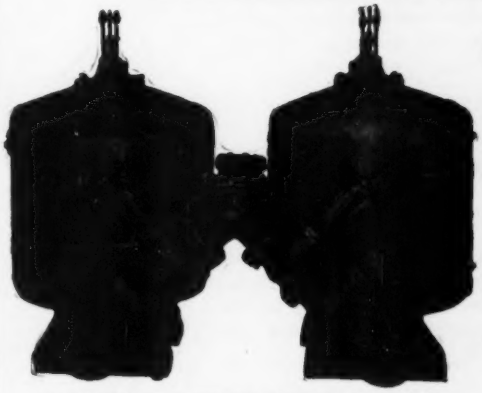

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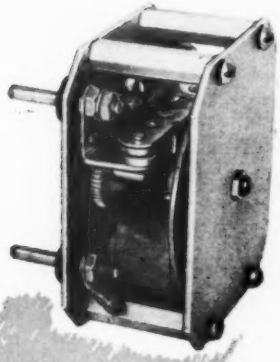

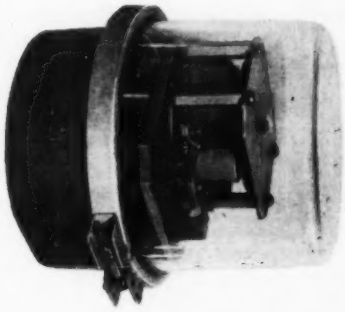

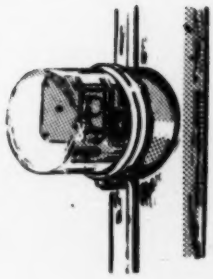

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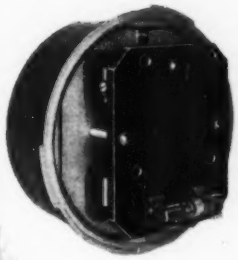
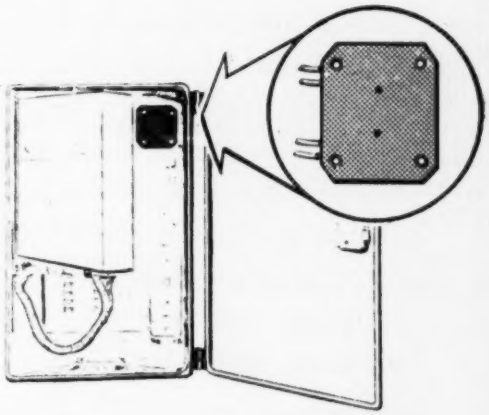


Jack mounted flasher with separate jack mounted panel is positioned in standard glass covered meter housing. Flasher is quickly accessible for easier maintenance.



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Conventions—When and Where

Conventions listed this month for the first time are indicated by an asterisk (*)

Dec. 10-11—Cleveland, Ohio
OHIO MUNICIPAL LEAGUE. Annual Convention (Tudor Arms Hotel). Sec., Allen E. Pritchard, Jr., 55 East State St., Columbus, Ohio.

Dec. 10-11—Washington, D. C.
CHAMBER OF COMMERCE OF THE UNITED STATES. National Conference on Highway Financing (Hotel Shoreham). For information adress the Chamber of Commerce of the U. S., at Washington, D. C.

Jan. 5-7—Atlantic City, N. J.
AMERICAN ROAD BUILDERS' ASSOCIATION. Annual Meeting (Chalfonte-Haddon Hall). Exec. Vice-Pres., Gen. Eugene Reynolds, World Center Bldg., Washington 6, D. C.

Jan. 12-15 Washington, D. C.
HIGHWAY RESEARCH BOARD. Annual Meeting (National Academy of Sciences Bldg.). Dir., Fred Burggraf, 2101 Constitution Ave., Washington 25, D. C.

Jan. 19—New York, N. Y.
AMERICAN WATER WORKS ASSOCIATION—New York Section. Winter Luncheon Meeting (Hotel Commodore). Sec.-Treas., Kimball Blanchard, 50 W. 50th St., New York 20, N. Y.

Jan. 21-22—New York, N. Y.
NEW YORK SEWAGE AND INDUSTRIAL WASTES ASSOCIATION. Annual Meeting (Hotel Belmont Plaza). Exec. Sec., R. C. Sweeney, 21 N. Broadway, White Plains, N. Y.

Feb. 1-3—Louisville, Ky.
ASSOCIATION OF ASPHALT PAVING TECHNOLOGISTS. Annual Meeting (Kentucky Hotel). Sec.-Treas., Ward K. Parr, Box 376, Ann Arbor, Mich.

***Feb. 3-5—Los Angeles, Calif.**
CALIFORNIA STREET AND HIGHWAY CONFERENCE. Annual Meeting (University of California). Institute of Transportation and Traffic Engineering, University of California (Berkeley and Los Angeles).

Feb. 8-10—New York, N. Y.
ASSOCIATION OF TOWNS. Annual Meeting (Hotel Statler). Exec. Sec., Edw. F. N. Uthe, 91 State St., Albany, N. Y.

Feb. 10-12—Indiana, Ind.
AMERICAN WATER WORKS ASSOCIATION—Indiana Section. Annual Meeting (Lincoln Hotel). George G. Fassnacht, 1330 West Michigan St., Indianapolis, Ind.

Feb. 25-27—San Francisco, Calif.
AMERICAN CONCRETE PIPE ASSOCIATION. Annual Convention (Fairmont Hotel). Managing Dir., Howard F. Peckworth, 228 N. LaSalle St., Chicago, Ill.

March 1-4—Los Angeles, Calif.
ASSOCIATED GENERAL CONTRACTORS OF AMERICA. Annual Meeting. Managing Dir., H. E. Foreman, 1227 Munsey Bldg., Washington, D. C.

March 7-12—College Station, Texas
TEXAS WATER WORKS AND SEWERAGE WORKS ASSOCIATION. Annual Meeting (Texas A & M College). Sec., V. M. Ehlers, 501 W. 33rd St., Austin, Texas.

***March 9-12—New Brunswick, N. J.**
NEW JERSEY MOSQUITO EXTERMINATION ASSOCIATION jointly with the AMERICAN MOSQUITO CONTROL ASSOCIATION. Annual Meeting (Haddon Hall). Sec., Bailey B. Pepper, New Jersey Agricultural Experiment Station, New Brunswick, N. J.

March 10-12—Atlantic City, N. J.
NEW JERSEY SEWAGE AND INDUSTRIAL WASTES ASSOCIATION. Annual Meeting (Hotel Traymore). Sec.-Treas., Michael S. Kachorsky, P. O. Box 766, Manville, N. J.

March 10-12—Washington, D. C.
ASSOCIATION OF HIGHWAY OFFICIALS OF THE NORTH ATLANTIC STATES. Annual Meeting (Hotel Shoreham). Sec.-Treas., A. Lee Grover, 1035 Parkway Ave., Trenton, N. J.

***March 11-14—Dayton, Ohio**
AMERICAN INSTITUTE OF PLANNERS. Annual Meeting (Biltmore Hotel). Exec. Dir., Perry L. Norton, Room 5-496 A, 77 Massachusetts Ave., Cambridge 39, Mass.

March 14-17—Charleston, S. C.
SOUTHERN ASSOCIATION OF COMMERCIAL ORGANIZATION EXECUTIVES. Annual Meeting (Hotel Francis Marion). Exec. Sec., M. E. Miller, Executive Vice-President, Chamber of Commerce, Daytona Beach, Fla.

March 17-19—Chicago, Ill.
AMERICAN WATER WORKS ASSOCIATION—Illinois Section. Annual Meeting (LaSalle Hotel). Sec., Dewey W. Johnson, Cast Iron Pipe Research Association, 122 S. Michigan Ave., Chicago 3, Ill.

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March 18—Boston, Mass.
AMERICAN WATER WORKS ASSOCIATION—New England Section. Annual Meeting (Hotel Statler). Sec., G. G. Bogren, Weston & Sampson, 14 Beacon St., Boston, Mass.

***March 18-19—Raleigh, N. C.**
SOUTHERN MUNICIPAL AND INDUSTRIAL WASTE CONFERENCE. (North Carolina State College.) For information address Mrs. H. F. Oehler, Jr., Office of Engineering Publicity, North Carolina State College, Raleigh, N. C.

March 19-21—Chicago, Ill.
AMERICAN SOCIETY FOR PUBLIC ADMINISTRATION. Annual Meeting (Conrad Hilton Hotel). Sec.-Treas., Laverne Burchfield, 1313 E. 60th St., Chicago 37, Ill.

***March 22-24—Little Rock, Ark.**
ARKANSAS WATER AND SEWAGE CONFERENCE. Annual Meeting (Marion Hotel). Sec., Harrison Hale, Southern State College, Magnolia, Ark.

March 24-26—New York, N. Y.
NATIONAL HEALTH COUNCIL. Annual Meeting. Exec. Dir., Philip E. Ryan, N.H.C., 1790 Broadway 19, N. Y.

March 25-27—Baton Rouge, La.
LOUISIANA MUNICIPAL ASSOCIATION. Annual Convention (Heidelberg Hotel). Sec.-Treas., Mrs. Douglas M. Warriner, 538 Reymond Bldg., Baton Rouge, La.

March 29-31—Greenville, S. C.
AMERICAN WATER WORKS ASSOCIATION—SOUTHEASTERN SECTION. Annual Meeting (Poinsett Hotel). Sec., N. M. deJarnette, Room 418, Wade Hampton Office Bldg., Columbia, S. C.

April 7-9—Emporia, Kans.
AMERICAN WATER WORKS ASSOCIATION—Kansas Section WITH THE KANSAS SEWAGE WORKS ASSOCIATION. Annual Meeting (Broadview Hotel). Sec.-Treas. Kansas Section, Harry W. Badley, 119 W. Cloud, Salina, Kans.; Sec.-Treas. Sewage Works Assn., Dwight Metzler, Room 2, Marvin Hall, Lawrence, Kans.

April 12-14—Toronto, Ontario
AMERICAN WATER WORKS ASSOCIATION—Canadian Section. Annual Meeting (Royal York Hotel). Sec., A. E. Berry, Director of Sanitary Engineering, Parliament Bldgs., Toronto 2, Ontario, Canada.

April 19-22—Lafayette, Ind.
PURDUE ROAD SCHOOL. (Purdue University). Exec. Sec., Ben H. Petty, Professor of Highway Engineering, CE Bldg., Purdue University, Lafayette, Ind.

April 22-23—Lincoln, Nebr.
AMERICAN WATER WORKS ASSOCIATION—Nebraska Section. Annual meeting (Cornhusker Hotel). Sec.-Treas., E. Bruce Meier, 201 Mechanic Arts, University of Nebraska, Lincoln, Nebr.

***April 22-23—Watertown, N. Y.**
AMERICAN WATER WORKS ASSOCIATION—New York Section. Annual Meeting (Woodruff Hotel). Sec., Kimball Blanchard, Room 1922, 50 W. 50th St., New York 20, N. Y.

***April 22-24—Tucson, Ariz.**
ARIZONA SEWAGE AND WATER WORKS ASSOCIATION. Annual Meeting (Santa Rita Hotel). Exec. Sec., M. V. Ellis, Supervisor Sewage Treatment Plant, Phoenix, Ariz.

***April 23-24—Bozeman, Mont.**
AMERICAN WATER WORKS ASSOCIATION—Montana Section. Annual Meeting (Baxter Hotel). Sec., A. W. Clarkson, Assistant Director, Division of Environmental Sanitation, State Board of Health, Helena, Mont.

***April 26-29—Washington, D. C.**
CHAMBER OF COMMERCE OF THE UNITED STATES. Annual Meeting. Exec. Vice-Pres., Arch. N. Booth, 1615 H St. NW., Washington, D. C.

***May 3-5—Chattanooga, Tenn.**
AIR POLLUTION CONTROL ASSOCIATION. Annual Meeting (Patten Hotel). For information address Robert T. Griebling, 4400 Fifth Ave., Pittsburgh 13, Pa.

***May 6-8—Gatlinburg, Tenn.**
TENNESSEE MUNICIPAL LEAGUE. Annual Meeting (Greystone Hotel). Exec. Sec., Herbert Bingham, 228 Capitol Blvd., Nashville 3, Tenn.

***May 9-16—Atlantic City, N. J.**
NATIONAL CONFERENCE OF SOCIAL WORK. Annual Meeting (Ritz Carlton and Ambassador Hotels). Exec. Sec., Joe Hoffer, 22 W. Gay St., Columbus, Ohio.

***May 18-21—Columbus, Ohio**
AMERICAN PLANNING AND CIVIC ASSOCIATION. Annual Meeting (Neill House). Exec. Sec., Harlean James, 901 Union Trust Bldg., Washington, D. C.

***May 18-21—Detroit, Mich.**
NATIONAL INSTITUTE OF MUNICIPAL CLERKS. Annual Meeting (Hotel Statler). Pres., Arthur Shinners, Town Hall, Brookline, Mass.

***May 23-26—Chicago, Ill.**
NATIONAL ASSOCIATION OF PURCHASING AGENTS. Annual Meeting (Conrad Hilton Hotel). Sec., Eugene A. Gump, Purchasing Agent, State of Michigan, Lansing, Mich.

***May 23-27—San Francisco, Calif.**
MUNICIPAL FINANCE OFFICERS' ASSOCIATION OF THE UNITED STATES AND CANADA. Annual Meeting. Exec. Dir., Joseph F. Clark, 1313 E. 60th St., Chicago, Ill.

***May 23-28—Seattle, Wash.**
AMERICAN WATER WORKS ASSOCIATION. Annual Conference. Sec., Harry E. Jordan, 521 Fifth Ave., New York, N. Y.

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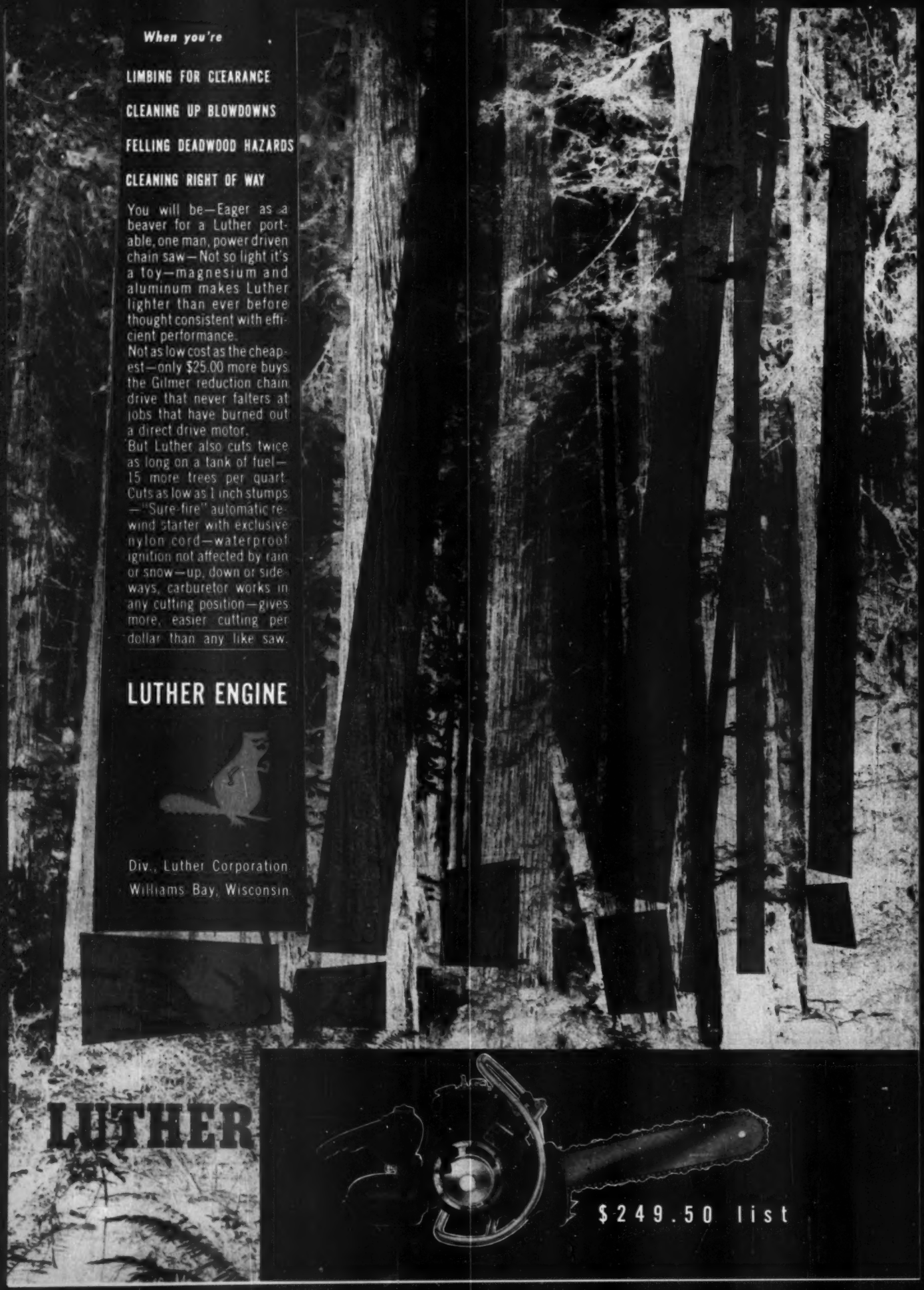
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Municipal & Civic Publications

The Citizen Association
How to organize and run it. 64 *pp.*

The Citizen Association
How to win civic campaigns. 64 *pp.*

Companion booklets written by Alexander L. Crosby, and published October 1953 *by the National Municipal League,* 299 *Broadway, New York* 7, *N. Y.* 75 *cents per copy (both for* $1.20).

The manuals are a distillation of knowledge gained by the League through its work with citizen groups and of facts and ideas contributed by more than 30 citizen associations that answered a 15-page questionnaire.

Citizens who are preparing to organize, students of government and civics, and community leaders will find the booklet on organizing and running the citizen association of considerable value.

The second manual is in two parts. How to run a campaign is told in the first section, while the second part describes campaigns conducted in 13 cities.

Handling and Placing Concrete

Gar Bro Mfg. Co., 2415 *E. Washington Blvd., Los Angeles* 21, *Calif. Paperbound.* 56 *pp. Free.*

A. F. Garlinghouse, editor of this booklet, has added to the usefulness of a conventional manufacturer's catalog by including a description of good practices of concrete handling and placing. The text briefly covers the field, from massive dams to small, truck-mixed projects. It also includes a reference and check list helpful for planning concrete work.

The Community and Industrial Development

By Robert B. Garrabrant. Technical Bulletin No. 21 *of the Urban Land Institute,* 1737 *K St. NW., Washington* 6, *D. C. September* 1953. 16 *pp.* $2.

The reason for inducing new industry to locate in a community, the needs and wants of industries, and some ways of attracting new industry are discussed in this bulletin which is intended as an introduction to the subject of industrial development programs. For those who want further information there is included a selected bibliography.

A Manual for Industrial Development

By S. B. Topf. Rhodes Publishing Co., P. O. Box 11, *Cambria Heights* 11, *N. Y.* 1953. 150 *pp.* $5.

This manual, whose author is an industrial engineer, is designed for chamber of commerce executives and civic leaders in small and medium size communities who are interested in stimulating and promoting new business and development. It is written in an easy-to-read style, with considerable case material and practical illustrations.

The chapter headings give a good idea of the manual's contents: "How to Set Up a Long-Range Program," "How to Prepare Your Town," "How the Chamber of Commerce Should Function," "How to Strengthen Existing Industries," "How to Prepare an Effective Brochure," "How to Solicit New Business," "How to Answer Prospects' Inquiries," "How to Close the Deal," and "How to Integrate a New Industrialist Into Your Town."

The Public Library Building

A report of the Fifth Institute on Public Library Management, April 13-15, 1953. *Copies may be secured from Bureau of Government, University of Wisconsin Extension, Madison* 6, *Wis.* 67 *multigraphed pp.* $1.25 *regular price;* $1 *to Wisconsin citizens.*

The papers presented at this Institute covered the basic principles of planning and organizing work and traffic flow, physical requirements for library furniture, color in decoration, building code requirements, special facilities for county or regional libraries, basic elements of a good library plan, and what the architect expects of the librarian.

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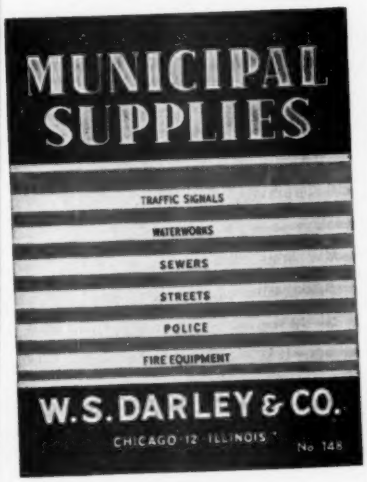

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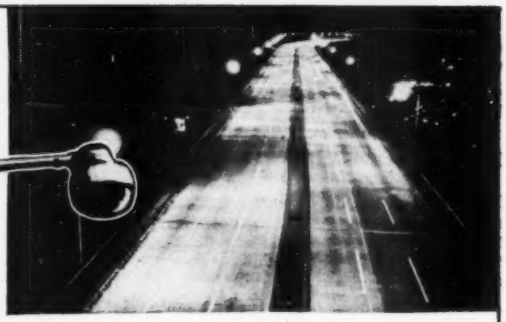

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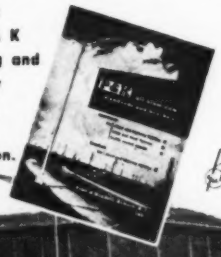

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Flood Control Politics

By William Edward Leuchtenburg. Harvard University Press, Cambridge 38, Mass. 1953. $5.

This volume chronicles the Connecticut River Valley Problem from 1927 to 1950, a time of controversy over flood control and flood protection as well as the question of public power in New England. The book not only traces the struggle in Washington during these years, but also narrates the collision between federal development and the philosophy of states' rights.

The author points to the inadequacy of of the interstate-compact device for the failure to develop adequately the resources of the Connecticut River valley. He also indicts the lack of a coordinated federal water-resources program—partly due to the organizational independence of the Army Corps of Engineers.

So That All May Believe

1953 *Annual Report to Governor Thomas E. Dewey and the Legislature—By Herman T. Stichman, Commissioner of Housing of New York State, 270 Broadway, New York 7, N. Y.* 145 *pp.*

In the Annual Report detailing activities of the New York State Division of Housing up to March 31, 1953, Commissioner Stichman analyzes slum living conditions, indicates how they may warp lives, and expresses his belief that slums, unless adequate preventive measures are applied, will eventually destroy the heart of any city. The "before and after" pictures are very persuasive.

The report covers low and middle-income housing, housing for the aged, neighborhood planning, new design trends in public housing, legal aspects, reports from local housing authorities, etc. There are tables relating to public housing projects and to limited dividend housing companies.

Management Information Service Reports

Published by International City Managers' Association, 1313 E. 60th St., Chicago 37, Ill. Available to subscribers to the service.

Departmental Records and Reporting

Report No. 117. October 1953. 10 pp.

Periodic reports should give the chief administrator a clear picture of the status and effectiveness of his organization without too much detail. The October issue of MIS aims to help produce such reports by discussing the elements common to record keeping and reporting in all city government departments and then suggesting types of records for each major department giving also sources of advice and assistance.

Your City Commission Brings Redevelopment To Montgomery For Better Health, Fewer Slums, Better Citizens

The Housing Authority of the City of Montgomery, 1020 Bell St., Montgomery, Ala. 12 pp.

In this illustrated booklet, the Montgomery Housing Authority practices municipal public relations by answering typical citizen questions on its redevelopment program. Also included are maps of the redevelopment projects.

County Planning In the New Jersey-New York-Connecticut Metropolitan Region

Regional Plan Bulletin No. 83. October 1953. Regional Plan Association, Inc., 205 E. 42 St., New York 17, N. Y. 16 pp. $2.

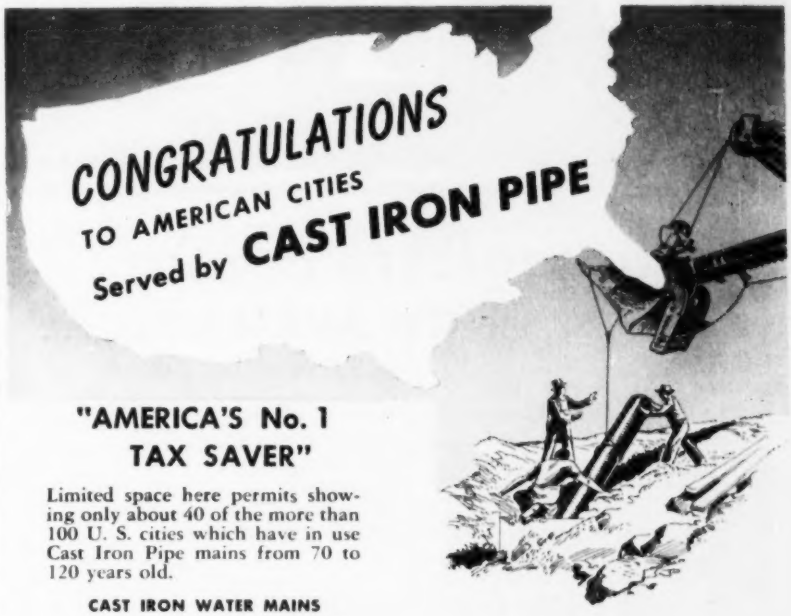
Strongly urging the continued growth of county planning, this Bulletin points out that counties, being large government units, are best fitted to consider the physical problems that confront the region from an "area" viewpoint, and that they provide an important link between state and local planning. County planning activity is described as it works in governmental coordination, land use, movement of people and goods, land subdivision regulation, population research, economic development and budgeting, aid to local planning and zoning control, and general research.

The County Planning Check List on the front page of the Bulletin is a helpful yardstick to measure the progress of any county.

English Local Government Finance, 1930-1951

By A. H. Marshall, City Treasurer, Coventry, England. (A paper prepared for the International Municipal Congress, held in Montreal, September 1953). 24 mimeo pp.

In order to make the financial relationship between central and local governments intelligible, the speaker first presented a short description of English local government. He then described local



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*Cleveland, Ohio	97 years
*Detroit, Mich.	115 years
*Indianapolis, Ind.	82 years
*Jersey City, N. J.	91 years
*Louisville, Ky.	93 years
*Lynchburg, Va.	124 years
*Mobile, Ala.	123 years
New York, N. Y.	120 years
*Philadelphia, Pa.	131 years
Pittsburgh, Pa.	104 years
*Portland, Ore.	87 years
*Reading, Pa.	120 years
*Richmond, Va.	123 years
*Sacramento, Calif.	100 years
*St. Louis, Mo.	117 years
*San Francisco, Calif.	94 years
*Washington, D. C.	94 years

CAST IRON GAS MAINS

City	Oldest Pipe in Service (1953)
*Atlanta, Ga.	98 years
*Baltimore, Md.	119 years
Boston, Mass.	117 years
*Brooklyn, N. Y.	104 years
*Cambridge, Mass.	101 years
*Charleston, S. C.	115 years
Chicago, Ill.	103 years
*Cincinnati, Ohio	97 years
*Indianapolis, Ind.	100 years
*Louisville, Ky.	114 years
*Macon, Ga.	101 years
*Manchester, N. H.	101 years
*Moline, Ill.	99 years
*Nashville, Tenn.	99 years
*Newark, N. J.	105 years
*Philadelphia, Pa.	118 years
*Providence, R. I.	105 years
Richmond, Va.	95 years
*St. Louis, Mo.	96 years
San Francisco, Calif.	93 years

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finances, especially sources of revenue, and discussed the future financial relationships of central and local governments. Unlike speakers on this subject from Canada and the United States, Mr. Marshall felt that adjustments called for by the trend toward ever-increasing expansion of municipal services are not fundamental in England.

Parking As A Factor In Business

Part 1—Attitudes Toward Parking and Related Conditions in Columbus—By C. T. Jonassen. Published by Highway Research Board, 2101 Constitution Ave., Washington 25, D. C. 1953. 50 pp.

From questionnaires submitted in six selected areas of Columbus, Ohio, scales were developed from which it was possible to measure the power of various factors to influence shoppers to use downtown or suburban facilities. Persons in the higher-income group, it appears from this study, prefer to shop downtown because of the greater selection of goods, in spite of the fact that they are the ones most concerned with traffic and parking problems.

This publication is one of five parts of the Parking as a Factor in Business study being financed by the automotive and petroleum industries under the direction of the Highway Research Board.

Other Reports

Housing, Planning and Zoning

CONNECTICUT—Airport Zoning Public Act No. 436, 1953. Research and Planning Division, Connecticut Development Commission, State Office Building, Hartford, Conn. 3 pp.

DISTRICT OF COLUMBIA—Annual Report of District of Columbia Redeveloped Land Agency, 499 Pennsylvania Ave. NW., Washington 1, D. C. Maps. Illus. 17 pp.

LONDON—The Planning of Industrial Location by Peter Self. This is third in a series of booklets published by University of London Press, Ltd., Warwick Square, on behalf of the Town and Country Planning Assn. 47 pp.

ROCKLAND COUNTY, N. Y.—County Planning Board Newsletter, *Rockland Plans*. Published by the Rockland County Planning Board, Fajen Bldg., New City, N. Y.

TULSA, OKLA.—Subdivision Regulations for the Tulsa Metropolitan Area. Available from Planning Commission, 1212 South Frisco Ave., Tulsa, Okla. 34 pp.

TOKYO, JAPAN—Better Service for 7 Million Citizens. Published by the Tokyo Metropolitan Government, August 1953. Illus. 16 pp.

Sewerage and Sewage Treatment

GRAND RAPIDS, MICH.—Annual Report on Operation of the Sewage Treatment Works. For the Year 1952-1953. Sewage Treatment Division of the Public Service Department. Tables. Graphs. 30 pp.

SOUTH—Proceedings of the Second Southern Municipal and Industrial Waste Conference. Sponsored by the Duke University, North Carolina State College, University of North Carolina. Available from The Technical Press, P. O. Box 5245, State College Station, Raleigh, N. C. Illus. $1.

GREATER VANCOUVER, B. C.—Sewerage and Drainage. A Report to the Chairman and members, Vancouver and Districts Joint Sewerage and Drainage Board. Obtainable from the Chairman of the Board. Maps. Tables. Graphs. Illus. 278 pp. $10.

Schools

WEST SPRINGFIELD, MASS.—School Building Needs for Secondary Education. Engelhardt, Engelhardt & Leggett, Educational Consultants, 551 Fifth Ave., New York 17, N. Y. September 1953. 17 pp.

ANSONIA, CONN.—Long-Range School Building Program. Engelhardt, Engelhardt & Leggett, Education Consultants, 551 Fifth Ave., New York 17, N. Y. 41 pp.

Traffic

GENERAL—Highway Construction Federal-State Relations. Construction and Civic Development Department, Chamber of Commerce of the U. S., Washington 6, D. C. 11 pp. Single Copies ten cents each. Bulk Orders $5.00 per 100.

——Toll-Road Developments and their significance in the provision of expressways by Harmer E. Davis, Ralph A. Moyer, Norman Kennedy, and Howard S. Lapin. Research report No. 11. January 1953. Institute of Transportation and Traffic Engineering, University of California, Berkley, Calif. Tables. Graphs. Maps. Illus. 85 pp.

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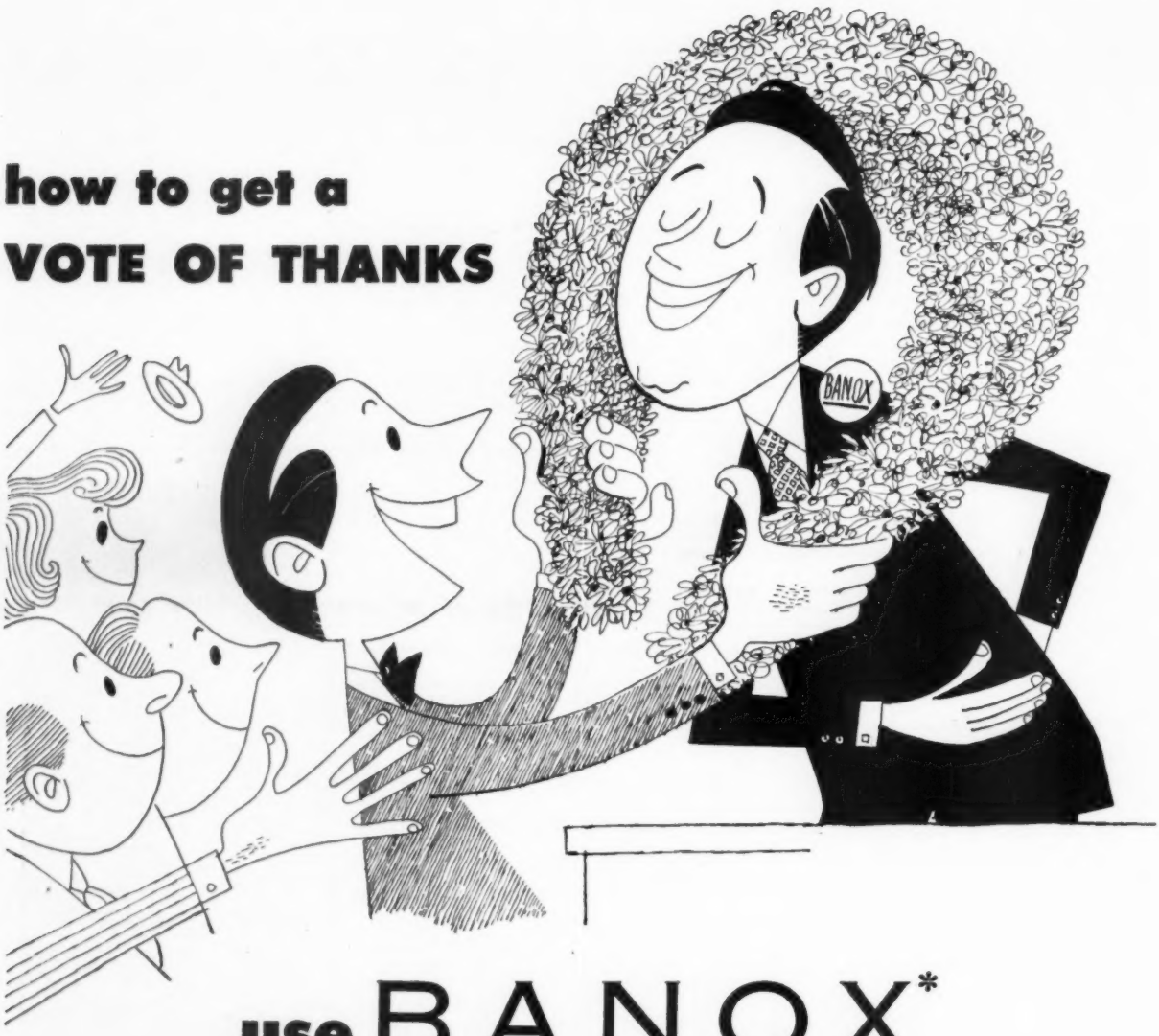

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Water Supply and Treatment

DELAWARE—Fourth Annual Report of the Water Pollution Commission, 1952-1953. Illus. Map. 13 pp.

LONG BEACH, CALIF.—Water Department's Annual Report, 1952-1953. Volume 9. Illus. Graphs. Tables. Map. 59 pp.

PORTSMOUTH, VA.—1952-1953 Annual Report of the Water Department. X. D. Murden, Supt., 925 Godwin St., P. O. Box 496. Graph. Tables. Illus. Unpaged.

Public Works

ARLINGTON COUNTY, VA.—Department of Public Service Annual Report. Fiscal Year Ended June 30, 1953. R. W. Wirt, Director. Maps. Tables. Illus. 68 pp.

Street Construction and Maintenance

GENERAL—Engineering Bulletin Series No. 81. Proceedings of the 39th Annual Road School. Compiled and edited by Ben H. Petty, Professor of Highway Engineering. For catalogs and information, address The University Editor, Purdue University, Lafayette, Ind. Graphs. Tables. Illus. 259 pp.

Public Health

DAYTON, OHIO—Health Report, 1952. Submitted by H. H. Williams, M.D., Health Commissioner. Graphs. Tables. 30 pp.

Finance and Taxation

GREENWICH, CONN.—1954 Proposed Budget and Related Statements. Recommended by Board of Estimate and Taxation. October 22, 1953. Tables. 70 pp.

FLORIDA—Revenue and Debt of Florida Municipalities and Overlying Governments by Wylie Kilpatrick, Bureau of Economic and Business Research, State Economic Studies No. 4. Public Administration Clearing Service Studies in Public Administration, No. 10. University of Florida, Gainesville, Fla. Tables. 197 pp. $1.50.

NEW YORK, N. Y.—Local Government Real Property Levies in New York 1952 and 1953. Prepared by Chester A. Phillips. Department of Governmental Affairs, Empire State Chamber of Commerce, 174 Washington Ave., Albany, N. Y.

Refuse

ILLINOIS — Suggested Minimum Requirements for Sanitary Landfill Operations. A Method of Refuse Disposal. Illus. Unpaged.

Annual Reports

BERKELEY, CALIF. — Annual Report of the Service Department. Owen Dyer, Director of Services. Tables. 24 pp.

——What's the Score? The Annual Report of the City Manager, John D. Phillips. Illus. 32 pp.

CHICAGO, ILL.—Annual Report of the Department of Law, 1952. Submitted by John J. Mortimer, Corporation Counsel. Tables. 86 pp.

FILLMORE, CALIF.—The Country Store, by "William Scatterboro." Annual Report. 1953. Illus. Mimeo. 45 pp.

HAMILTON, OHIO—This Is Your City. Presented by George E. Radcliffe, Mayor, and Charles F. Schwalm, City Manager. 1953. Unpaged.

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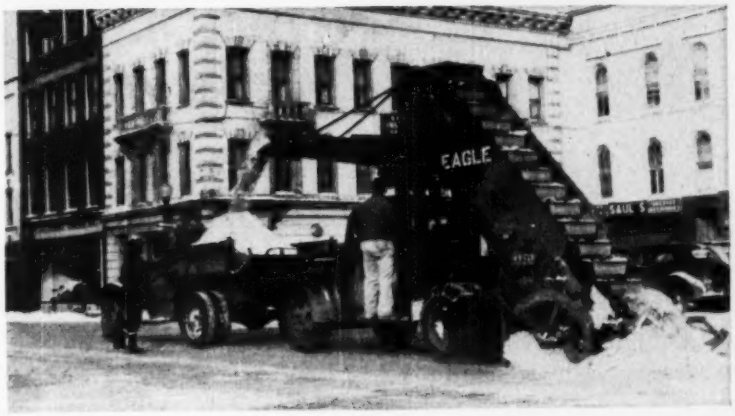

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HEALDSBURG, WASH.—Eighty Years of Progress: 1873-1953. Tables. Illus. Unpaged.

HONOLULU, HAWAII—Annual Report, 1952. Betty Lowe, William Suzuki (Art), and Y. K. Mau, assisted in the preparation of this report. Department of Public Works. Illus. Tables. 125 pp.

JUNCTION CITY, KANS.—A Guide for Citizens. Information of the Functions of Your City Government. October 1953. 11 pp.

MILWAUKEE, WIS.—Growing in Milwaukee. Annual Report of the Superintendent of Schools, 1953. Illus. Unpaged.

OGLESBY, ILL.—Twenty-third Semiannual Report, May 1, 1953, to October 31, 1953. This report prepared by Edward Hand, City Clerk. 27 pp.

ROYAL OAK, MICH.—1952 Annual Report. Available from Office of City Manager, E. M. Shafter, City Hall. Illus. 23 pp.

SAGINAW, MICH.—Annual City Report. A Progress Report of Your Local Government. Published by the city by *The Saginaw News*. Illus. 12 pp.

Awards and Election at NAHO Annual Meeting

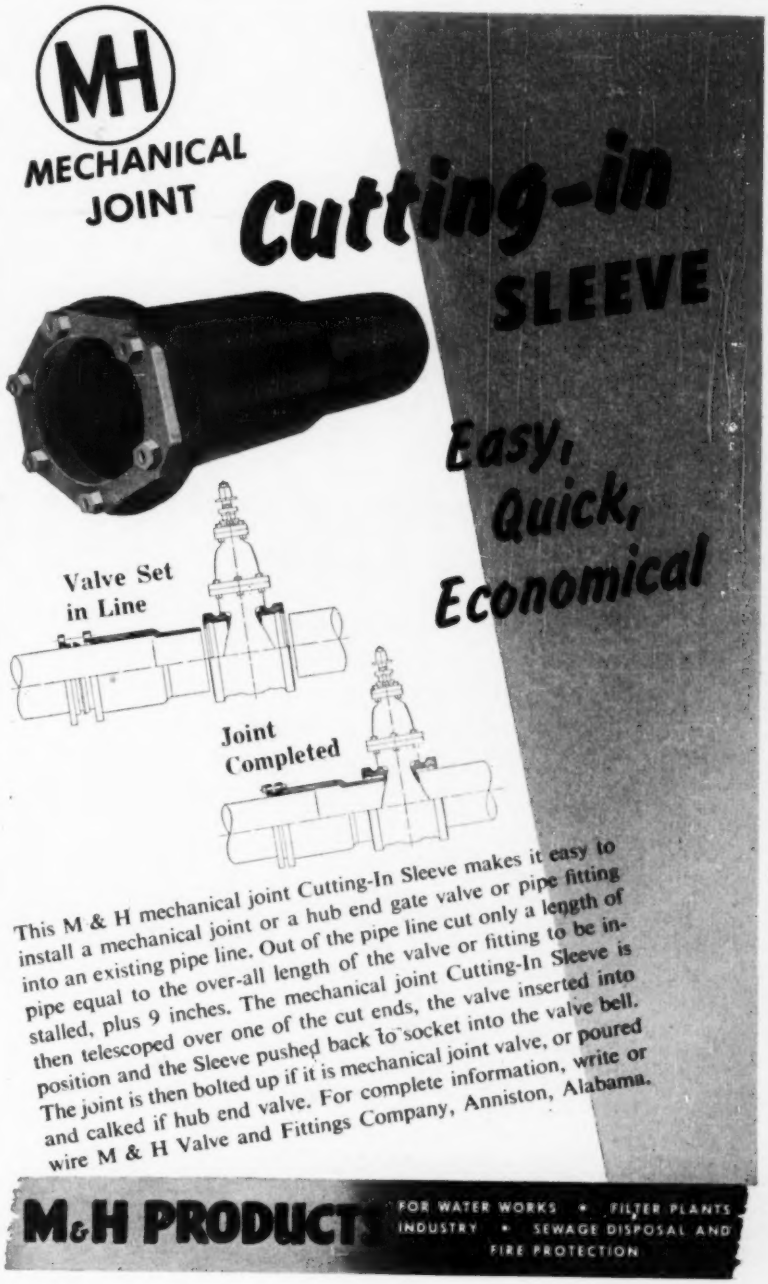
OLIVER C. WINSTON, executive director of the Housing Authority of Baltimore City, was elected president of the National Association of Housing Officials at its 20th annual conference, which met in Milwaukee, October 12-15, and was attended by more than 900 delegates. Theme of the meeting was: "A New Look at Community Rebuilding," with the keynote speech delivered by Frank P. Zeidler, Mayor of Milwaukee. Proposals were made for strengthening and improving local public housing programs, and services.

Awards for distinguished achievement in the fields of housing and urban redevelopment were presented to four individuals and to three local housing authorities. Louis Brownlow, of Washington, D. C., was honored for his outstanding accomplishments and influence as housing pioneer, and A. Gideon Spieker, of Toledo, Ohio; Rufus Hodges, of Mechanicsville, N. Y., and William Sinkin, of San Antonio, Texas, were honored for outstanding contemporary achievements. Local housing authorities in Philadelphia, Little Rock, and Orlando received awards in recognition of their outstanding housing and redevelopment programs.

In the NAHO fifth annual reports competition, certificates of special merit were given to eight authorities and certificates of merit to 16 authorities. Certificates of special merit were awarded to the Indianapolis Redevelopment Agency and to housing authorities in Buffalo; Fresno, Calif.; Greensboro, N. C.; Hartford, Conn.; **Kansas City, Mo.; Little Rock; Long** Branch, N. J.; Memphis; Nashville; New Orleans; San Joaquin County, Calif.; Washington, D. C.; Alaska, and Hawaii.

Other new officers of NAHO are: Walter B. Mills, Jr., executive director, Gadsden, Ala., Housing Authority, first vice-president and Herbert J. Dahlke, a commissioner and former chairman of the Portland, Ore., Housing Authority, second vice-president.

Named to three-year terms on the board of governors of NAHO are: Ernest J. Bohn, director of the Cleveland Metropolitan Housing Authority and a member of President Eisenhower's advisory committee on housing policies and programs; Clarence C. Klein, administrator, Housing Authority of the City of Pittsburgh; John R. Searles, Jr., executive director of the District of Columbia Redevelopment Land Agency, and B. Finley Vinson, executive director of the Housing Authority of the City of Little Rock. Robert D. Sipprell, executive director of the Buffalo Municipal Housing Authority and a former executive director of NAHO, was named to a one-year term on the board.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This M & H mechanical joint Cutting-In Sleeve makes it easy to install a mechanical joint or a hub end gate valve or pipe fitting into an existing pipe line. Out of the pipe line cut only a length of pipe equal to the over-all length of the valve or fitting to be installed, plus 9 inches. The mechanical joint Cutting-In Sleeve is then telescoped over one of the cut ends, the valve inserted into position and the Sleeve pushed back to socket into the valve bell. The joint is then bolted up if it is mechanical joint valve, or poured and calked if hub end valve. For complete information, write or wire M & H Valve and Fittings Company, Anniston, Alabama.
M&H PRODUCTS
FOR WATER WORKS • FILTER PLANTS INDUSTRY • SEWAGE DISPOSAL AND FIRE PROTECTION

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Sewer Gas Can't Harm

CLAY PIPE

There's no safe substitute for Vitrified Clay Pipe. It resists corrosion from the acid gases that rise out of sewage waste. Gases actually do more damage than waste liquid. But sewer gases do not affect Clay Pipe.

Clay Pipe is also *completely* safe from acid liquids, strong detergents, or the corrosive substances produced by decaying waste from garbage disposal units. Clay Pipe is *guaranteed for 50 years.*

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C-1053-4

Old Cities—New Ideas

(*Continued from page 99*)

oughfares is prohibited, and in Paris and London loading and unloading apparently is prohibited, or at least prevented, by the large number of transit buses which follow the curb lane of traffic.

Several European cities have sponsored the building of large exhibition areas or structures for conventions of all kinds. One such area, containing numerous buildings, has been completed recently in Dusseldorf, Germany. Many of these city enterprises are of highly attractive architectural design.

Since the war, European cities have erected much public housing. In addition, private cooperative associations with the aid of government grants and loans have built fine apartments. Thousands of dwelling units have been built during recent years in England, Holland, and Switzerland, but the most outstanding progress is taking place in Germany where cities have been forced, because of the extensive destruction during the war, to rebuild vast areas.

A unique municipal activity is a municipal nursery and kindergarten. Two years ago Kirchheim-Teck erected a modern building which cares for 250 children ranging in age from eight days to six years and keeps them all day while their mothers are at work. The children are fed and provided with play facilities, and the older ones are given kindergarten training. This so-called "Children's Village" is operated for the city by a private group at a cost of $10,500 a year. More than nine-tenths of this budget is met each year by local industries, with the city and parents paying only one-tenth. Parents pay only 25 cents per day per child. Fifty-six per cent of the original cost of the building and equipment was financed by the city, 28% by industry, and 16% by a loan and grant from the state.

Housing for Older People

Another new type of municipal service is the housing for elderly married couples in Coventry, England. Each unit, which contains living quarters for three couples, is a one-story brick structure with no steps and no basement. Each couple has a large bedroom, bath, and kitchen, and all three couples share a large living room. The buildings are very attractive and the rents are low.

The Wellington Gardens old people's homes in Coventry have been erected on a slum-clearance site near the city center and form the first portion of the proposed redevelopment of the area. The homes include bungalows and flatlets, the latter providing self-contained rooms for old people of either sex, with access to a communal lounge (see photos). There is accommodation for 30 people on the site, 18 in bungalows for couples, and the rest in two-story flatlets.

This scheme was aided by a grant of $84,000 from the Lord Mayor of London's National Air Raid Distress Fund, and the residents chosen to occupy the homes are old people whose troubles began during the blitz when their homes were destroyed. One feature is an indoor garden for those unable to go outside, this being surrounded by a double thickness of glass to prevent heat loss.

I was impressed with the availability of public telephones which are located in booths on the sidewalk. Some years ago London abandoned the fire-alarm system, and I understand now depends on the telephones. Pay-station phones are designed in such a manner that no charge is made

NEW Big Beam
AUTOMATIC EMERGENCY LIGHT
Model 2ATW

It's the most COMPLETELY DEPENDABLE emergency light ever built! When regular lights fail . . . this new Big Beam turns on instantly —provides hours of illumination. The battery is charged to capacity *at all times* by an enclosed trickle charger. Your customers deserve Big Beam quality and dependability.

Big Beam
PORTABLE ELECTRIC HAND LAMPS
Model 166

This *sealed beam* model is one of many types of Big Beam portable electric hand lamps used in thousands of plants and warehouses throughout the country. Learn more about the complete Big Beam line.

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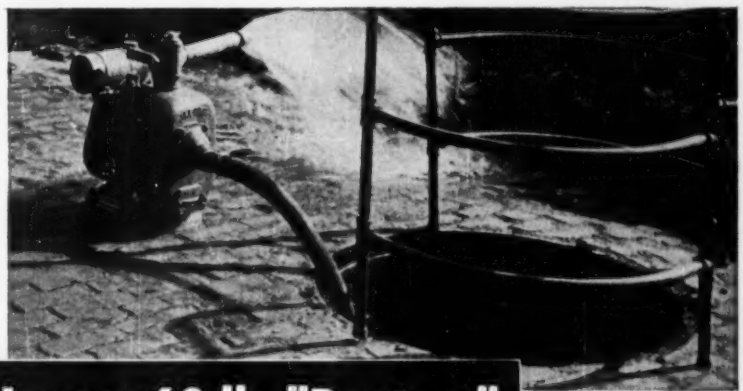
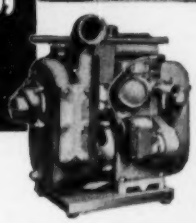


Jaeger 60 lb. "Bantam" armored against wear



The only 1½" pump with a replaceable liner plate and stainless steel fitting at point of greatest wear. Engine runs at only 2500 to 3200 rpm instead of the 4200 rpm of pumps that have less capacity. These features mean thousands of extra hours of service. Sure-primes automatically. Pumps 5100 gph. Aluminum model weighs 60 lbs. Powered by 1½ hp. 4-cycle gas engine or ¾ or 1 hp. electric motor. See Bulletin LP-9.

Model 2 PAF delivers up to 9000 gph. Primes in a few seconds (less than 1 min. at 25 ft.). Aluminum, weighs 105 lbs., saltwater resistant. Replaceable liner plate and stainless steel fitting at point of greatest wear.

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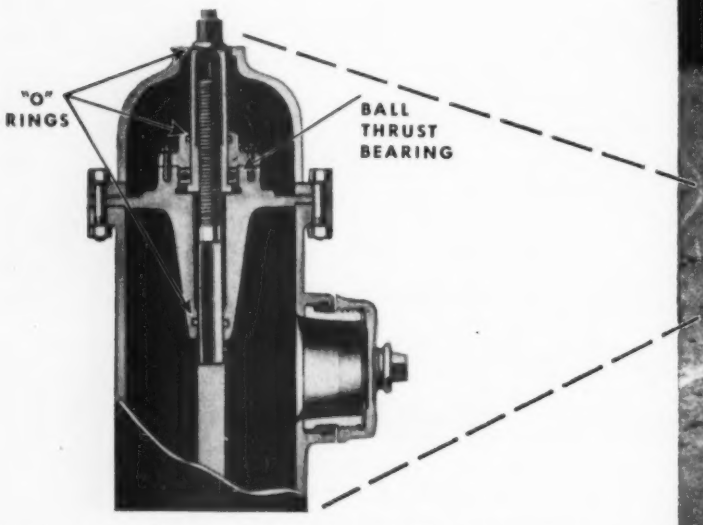
In Cuyahoga Falls...

Darling hydrants for 45 years ...now DARLING B-50-B's are going in!

EASIER maintenance and rugged construction . . . basic design advantages of Darling hydrants and valves . . . have been paying off in Cuyahoga Falls, Ohio, since way back in 1908. In the words of City Engineer T. H. Sauter, "The City of Cuyahoga Falls has been a user of Darling hydrants and valves since 1908. The ease with which repairs can be effected has been a factor in the determination of the city to standardize on this type of equipment."

Darling B-50-B's Bring Unique, New Advantages!

Cuyahoga Falls, and hundreds of other cities too, are now installing the new Darling B-50-B hydrants. This dry-top, ball-bearing hydrant opens quicker, operates easier, and eliminates bothersome packing lubrication. Moreover, the special Darling B-50-B "O" rings are insurance against loss of lubricant for threads and bearings . . . *and never let a drop of water reach the operating threads.*



Before you decide on any hydrant or valve, get all the facts on the new Darling B-50-B hydrant and Darling water valves for every service. *Write today!*

DARLING VALVE & MANUFACTURING CO.

Williamsport 10, Pa.

Manufactured in Canada by The Canada Valve & Hydrant Co., Ltd., Brantford 7, Ontario

Old Cities—New Ideas

(*Continued from page* 173)

for fire calls, the call being made by dialing 999.

European cities generally have avoided setting up separate administrative boards and authorities. Schools and housing, for example, are administered by regular city departments rather than by boards. It was the belief of local officials who attended the Vienna Congress that the city council should keep control of municipal activities and should not avoid responsibility for certain functions by transferring them to a special authority. Utilities, such as water, gas, electricity, and transit, usually are placed in one department and operated on a cost basis. Making a profit on municipal utilities is not considered good policy.

Many Cultural Activities

European cities promote and support cultural activities, such as symphony orchestras, operas, art galleries, museums, and so on. Innsbruck, Austria, last year for the first time sponsored a contest for the three best poems by local citizens. The city issued a leaflet listing books on poetry and the demand at the book stores and the public library showed that interest in reading poetry was stimulated. Innsbruck also provides a theater and pays 50% of the cost of maintenance and of producing plays, operas, and dramas. The city also subsidizes a symphony orchestra.

Heidelberg, Germany, a city of 120,000 inhabitants, spends the equivalent of $250,000 a year for subsidizing opera, orchestra, and theater. Geneva, Switzerland, supports private organizations devoted to art, welfare, sports, vacation schools, and so on, and the city owns and operates a large opera building.

City Departments of Culture

Most of the other cities I visited also assist and promote cultural activities and advise with private organizations on the conduct of exhibitions, concerts, festivals, library and musical competitions, the use of audio-visual material, the erection of statues, purchase of paintings, and so on. Usually, there is a city department of culture, as in Vienna, where one of the 11 city departments is devoted to culture and adult education.

I was impressed with the friendliness of the people everywhere, and this was reflected in the attitude of municipal officials who gave us such a splendid welcome to their cities. Our cities have much to learn from some of the progressive cities in Europe.

Letter to Santa from His Honor

I'd like a town where schools are newer
And highways wider and dangers fewer;
I'd like a town where parks are greener
And traffic's smoother and gutters cleaner;
I'd like a town with teachers beaming
And cops and firemen brisk and gleaming;
A town of which each Ann and Andy
Will say, "My town's just fine and dandy!"
A town for which each Jack and Jill
Will be right glad to pay the bill!
I (and each mayor from Nome to the Isthmus)
Would like that bill of goods for Christmas.

—A. S. FLAUMENHAFT

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The Pioneer Self Caulking Material for C I Pipe

YOU CAN'T GO WRONG WITH

The pioneer self-caulking material for cast iron bell and spigot water pipe which, for more than 50 years, has shown water works men how well it makes a good tight joint that improves with age.

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No Caulking

just a PINCH OF SALT

is all you need for efficient, low-cost Ice and Snow Control.

½ ounce of de-icing *salt* per square yard, applied *the "Scotchman-Way"* is all you need. Why? Because *the "Scotchman", the air-blast spreader,* lays down a *perfect melting pattern*—no rings, no streaks, no waste.

The "Scotchman-Way" of winter pavement maintenance is *50% CHEAPER* and *8 times FASTER* than using treated abrasives.

Here's a Modern spreader: 1. that spreads *bagged or bulk material,* from *any truck* at any desired rate; 2. that has *more stainless steel* in its construction; 3. that is *self-powered* by an *electric starting engine* operating in filtered air; 4. that *saves its cost* in the first few hours of operation.

The "Scotchman-Way" Saves: Materials, Time, Lives.

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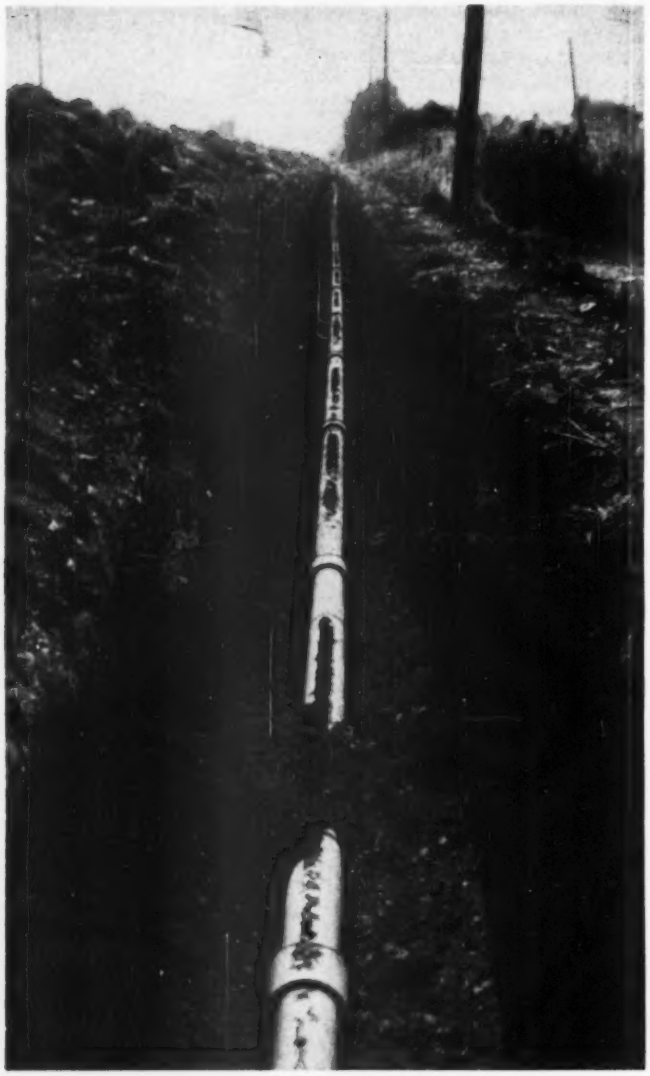

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ASBESTOS-CEMENT PIPE

The importance in an industrial installation of a water supply line for fire protection cannot be minimized. And "Century" pipe offers a distinct advantage.

No need for concern that one day as a result of tuberculation, the line will carry less water and be inadequate to meet an emergency. That cannot happen with "Century" pipe. The bore retains its original diameter and smoothness—a very real advantage for any pipe intended for water supply.

"Mains Without Maintenance" is an informative booklet of real value to anyone concerned with water mains. Write for it.

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Nature made asbestos . . . Keasbey & Mattison has made it serve mankind since 1873

Miami Beach Expands Public Recreation

MIAMI BEACH, FLA., is continuing to develop municipal recreation facilities designed to appeal to all age groups in its 50,000 permanent population and estimated 2,000,000 visitors yearly.

With 571 acres of its seven square miles devoted to a multiphased entertainment and relaxation program, the city has announced the opening of a new ocean-front park this month. Another inland park is scheduled for opening within six weeks.

The city now has two municipal golf courses, a driving range, nine inland parks and eight ocean-front parks plus an auditorium, library, art center, boardwalk, and two marinas. Regularly scheduled entertainment is offered year-round. Admission is free to all public parks and beaches.

The newly opened ocean-front park has been named Pier Park. It includes a 560-foot concrete pier from which fishing is permitted. A children's playground has been built on the inner portion. The park also has a magnificent community center, built at a cost of $90,000. Free "dancing under the stars," vaudeville shows, and concerts are offered nightly. The Center has a seating capacity of 1,100, an open-air terrazzo dance floor and stage.

South Shore Park, scheduled for opening in November, is located on the city's bay front. It has a recreation building, fishing docks, children's playground, hand and basketball courts, and a picnic area.

Future recreation development includes a municipal swimming pool, another community center and convention hall, and an inland park. These projects have been included in this year's budget.

Nonmilitary Measures To Reduce Urban Vulnerability

(*Continued from page* 105)

and for the local and federal agencies concerned to set in motion through the application of Title I of the Housing Act of 1949 a slum-clearance program which would be a life saver to our cities both in peace and war, and which would eliminate one of the gravest threats this country faces in an atomic attack.

In my opinion, an effective program can also be carried out to enable American industry to function more efficiently in peace and to insure their continuity of production in time of atomic attack. Essentially, this is a long-term program invoking better spacing of industry in existing metropolitan areas. For a few key plants, it may be necessary to require major moves but, in general, industry can stay in the area where it is now located. Industry would do this, I believe, largely on its own account if it could only find out what it can and should do to take advantage of the many economic interests of desirable spacing. But here again, industry needs the blue print that only the federal, state, regional, and local authorities can provide. . . .

These nonmilitary measures are as essential and, in my opinion, more effective than many of the strictly military defense steps. Fortunately, these nonmilitary measures are as important to better peacetime living as they are essential for our national security. Lastly, but most important of all, is the fact that it is inevitably and essentially a civilian task and responsibility to arouse the interest of the public and to undertake and carry out these nonmilitary measures that are so badly needed to reduce urban vulnerability.

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Prepakt Concrete provides exceptional bond to old concrete and extreme resistance to weathering.
Offices in Principal Cities or write . . .
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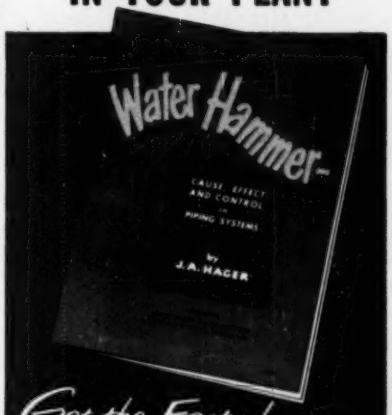
WILLIAMS-HAGER FLANGED *Silent* CHECK VALVES WILL ELIMINATE COSTLY, DANGEROUS WATER HAMMER IN YOUR PLANT



Get the Facts!
WRITE FOR YOUR COPY OF THIS NEW BULLETIN *TODAY!*

Don't let dangerous water hammer wreck the piping system in your plant. Learn the cause, effect and control of this costly nuisance.

CHECK VALVES
THE WILLIAMS GAUGE CO., INC.
3013 Pennsylvania Ave., Pittsburgh 33, Pa.

MAIL THIS COUPON TODAY

THE WILLIAMS GAUGE CO., INC.
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Pittsburgh 33, Pa.

Please send a copy of Bulletin WH-851 on "Water Hammer, Cause, Effect and Control in Piping Systems."

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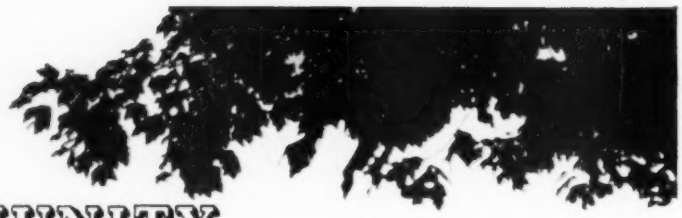

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Communities that have KOVEN All Steel Swimming Pools acclaim them—not only for their splendid performance and beauty—not only for the health and happiness they give—but also for their enduring value. For a KOVEN All Steel Pool continues the economy it gives right from the start, with its low initial cost. The only leak-proof type built, its welded steel construction frees it from many weaknesses found in other types of pools. Upkeep is no more than an occasional coat of paint. Design assures conformity with city planning.

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INDOOR AND OUTDOOR MODELS

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States Urged to Exempt Household Furnishings From Property Taxation

THE UNWISDOM OF INCLUDING household furnishings in property taxation is forcibly presented in a recently published report of a special committee of the National Association of Assessing Officers.

The two main reasons offered for ending such taxation are: First, the tax brings little revenue, compared to the amount of time, money, and labor that go into assessing and collection. Second, it is almost impossible to achieve fair and accurate assessment and to get full payment.

All but 13 states have some tax on household furnishings. But the report shows that for all practical purposes the laws are not enforced in a large number of jurisdictions.

Evidence that awareness is growing of the snags in carrying out a tax on household furnishings is seen in the fact that since 1945 Maryland, South Carolina, Connecticut, and Louisiana have changed their laws to completely exempt household furnishings from property taxation. And within the last 10 years, Alabama, Massachusetts, Michigan, and Vermont have increased the amount of exemption allowed for such taxation.

High-Rate, Low-Cost Plant

(*Continued from page* 84)

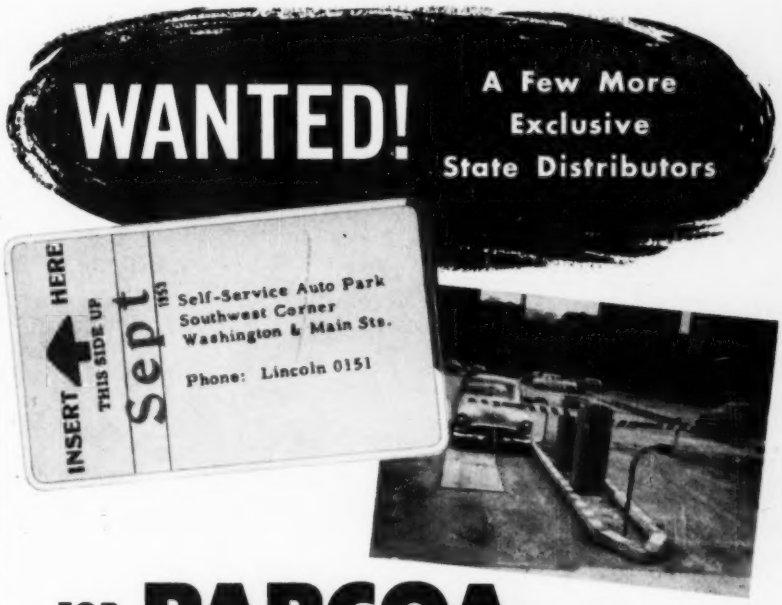
is by gravity, except that a Fairbanks-Morse vertical, mixed-flow pump lifts the primary-clarifier effluent onto the high-rate trickling filter. This pump is driven by a wound-rotor type of motor that provides a variable-speed pump. The speed of the motor is controlled manually by the use of a water rheostat. The variable speed is provided so that the operator can select the recirculation ratio for the trickling filter to suit both the flow to the plant as well as degree of treatment required by the receiving stream. The capacity of the pump is 1,200 to 7,200 gpm.

The trickling filter is 85 feet in diameter and has a 5½-foot depth of rock. It is equipped with Dorr distributor arms of the reaction and double-compartment type. The filter uses Infilco Hi-Cap under-drain blocks. The filter rock is 3 inches to 4½ inches in size. The filters were designed for a maximum loading of 4.6 pounds of BOD per cubic yard. The filters send the effluent to final settling basins that are identically designed with the primary clarifiers.

The plant is designed to provide two-stage sludge digestion in a pair of 45-foot-diameter digestion tanks. These supply a digestion capacity of 3 cubic feet per capita. Each digester is equipped with a Pacific Flush Tank pontoon-type floating cover. Both tanks are heated by Pacific Flush Tank external heat exchangers. Open sludge beds, 30,000 feet square, are provided for dewatering digested sludge.

Trickling filter-type of purification also is used to pretreat the wastes from the pea cannery. The filter is 110 feet in diameter, and has a 5½-foot stone depth, but uses a redwood under-drain system. It has a Pacific Flush Tank reaction-type distributor that applies the waste to the filter bed. The BOD loading is approximately 8 pounds per cubic yard.

The settling compartment is composed of rectangular basins that have been converted from Imhoff tanks. Two hours of detention is provided before and following the trickling-filter treatment. Sludge from the settling basins is digested in an internally heated digester that has a fixed roof.



FOR **PARCOA...**

THE CARD KEY AUTOMATIC PARKING SYSTEM

A few states are still open for exclusive distributors on PARCOA...the timely NEW idea in automatic merchandising of automobile parking space that has taken the country by storm.

"Off-Street Parking" is the goal of city officials and traffic experts in every city today! PARCOA solves this problem by making off-street parking a simple matter through automatically-operated parking lots that require no attendants. A coded card which operates entrance and exit gates is the key to this revolutionary system. Parcoa is the answer for public parking lots, industrial parking facilities, executives' lots – wherever parking is a problem.

It's the profit opportunity of a lifetime for aggressive distributors who want to get in on the ground floor. Remaining territories will be allotted on a first-come basis. Write for full details immediately, stating territory now being covered, lines handled, and type of sales and service organization you operate.

PARCOA **PARKING CORPORATION OF AMERICA**

Subsidiary of Johnson Fare Box Company
Specialists in Revenue Collection since 1909
33 North La Salle Street, Chicago 2, Illinois
Sales and Service Offices in Principal Cities

How to CLEAN UP with low operating costs

Part of a fleet of 350 INTERNATIONAL 210 Series. GVW ratings 30,000 to 36,000 lbs. 145, 157, 175, and 193-inch wheelbases. Gasoline, LPG or Diesel power.

Whether it's garbage disposal or any other municipal trucking operation, it takes the *right* truck to keep costs down.

It takes a truck that's built for the job—with dependable power and stamina—to stay on the job longer, for less money. In short, it takes an INTERNATIONAL.

Think of the tremendous number of jobs that your city's trucks perform. INTERNATIONAL offers exactly the right truck for every single job, because INTERNATIONAL builds America's most complete truck line.

Each has the all-truck power and stamina, the lower-cost operation that have made INTERNATIONAL the choice of cost-conscious operators for so many years.

See your INTERNATIONAL Dealer or Branch, today—and start cutting costs with the right truck for the job.

AMERICA'S MOST COMPLETE TRUCK LINE

170 basic models from ½-ton pickups to 90,000 lbs. GVW off-highway models . . . including six-wheel, four-wheel drive, cab-forward, and multi-stop delivery types . . . 29 engines from 100 to 356 h.p., with widest choice of gasoline, LPG, or diesel power . . . wheelbases, transmissions and axle ratios for any need . . . wide selection of bodies and equipment . . . thousands of variations available for exact job specialization.

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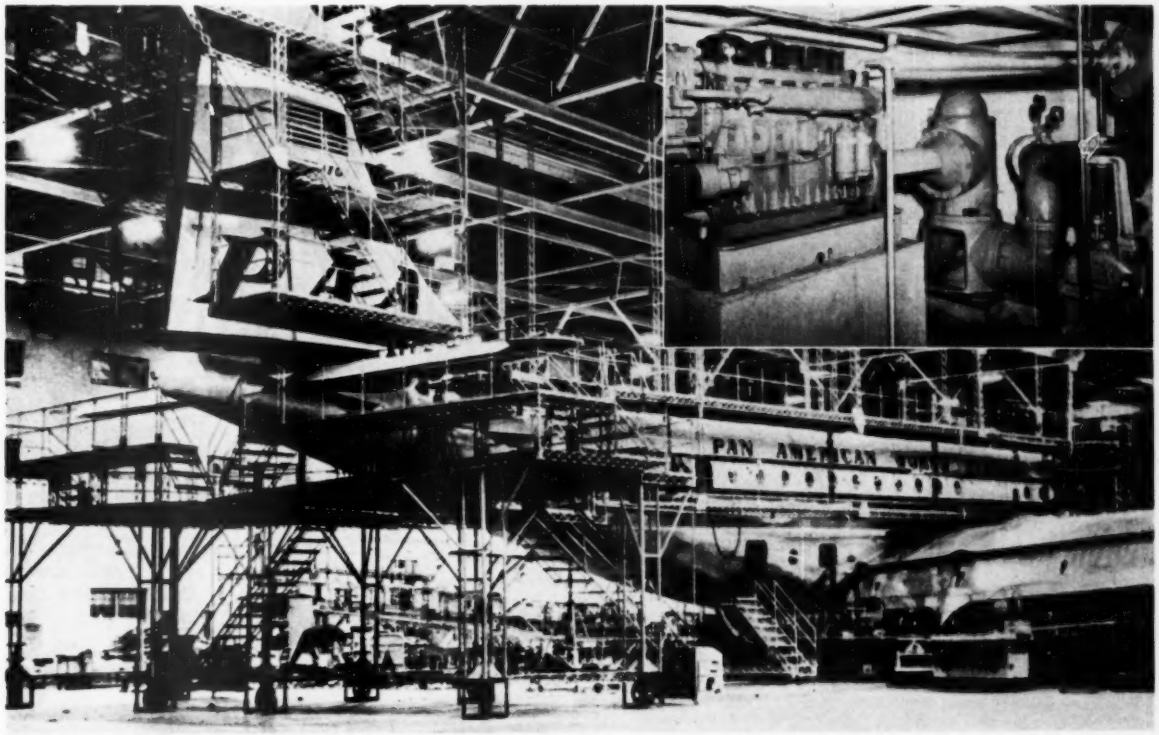
International Harvester Builds **McCORMICK** Farm Equipment and **FARMALL** Tractors . . . Motor Trucks . . . Industrial Power . . . Refrigerators and Freezers.

Better roads mean a better America

INTERNATIONAL® TRUCKS
"Standard of the Highway"

Purchasing News

Informaton for officials interested in equipment and services for the constructon, operation, and maintenance of municipal utilities



Double-deck Strato-Clipper, world's largest commercial airliner in "dry-dock" at Miami Airport. Insert in upper righthand corner, shows a Fairbanks-Morse deep well turbine fire pump driven through an F-M right-angle gear by a diesel engine.

Fire Pumps Protect Hangars at Miami's Airport

When Pan American World Airways recently enlarged its overhaul operations at Miami International Airport, making it the world's largest airline base, the matter of protecting the huge installation against damage from fire received careful attention. With dependability paramount, PAA decided to install its own pumping system to serve both the deluge system and the sprinkler system which protect the more than 450,000 square feet comprising the airframe overhaul area and the passenger terminal.

At the heart of the extensive fire-protection system for these operations are four fire pumps designed by Fairbanks-Morse & Co., Chicago 5, Ill., and rated at 2,000 gpm each, at 100-pound pressure. Three are 18-in. vertical deep well turbine pumps drawing from individual wells; the fourth an 8-in. horizontal dual-drive centrifugal pump that takes its water from a 150,000 gallon reservoir. Two of the vertical pumps are direct-connected through F-M right angle gears to diesel engines, while the other is motor-driven. The centrifugal pump has a dual drive, being powered either by a 150 hp F-M electric motor, or a 150 hp diesel engine.

Both the deluge system and the sprinkler systems depend for water on a network of underground, 10- to 16-in. water mains which supply the three vertical "riser" pipes in each of the four hangars. The "riser" pipes, in turn, feed a network of normally dry pipes suspended from the roof. Water is maintained in the mains and risers under a constant pressure of from 110 to 125 pounds by four 25-gpm F-M turbine-type pumps.

If one of the "rate-of-rise" detectors in the deluge system were to spot a sudden increase in temperature, it would set off a whole series of reactions. First, it would ring a conventional bell alarm system. Secondly, it would open the valve in the riser feeding the overhead piping in the particular section of a hangar where the temperature rise was detected. Thirdly, the detector would start up all three of the 18-in. F-M vertical turbine pumps, and finally, at would empty into the mains the pressurized contents of two 18,000-gallon booster tanks.

The deluge system alarm is also set to act in the event of a drop in water pressure in the underground mains and risers, and in case of a power failure. Either failure will immediately activate the 18-in. Fairbanks-Morse fire pumps—all three pumps should water pressure drop, the two diesel-driven units should electric power go out. The 8-in. F-M dual-drive fire pump is intended for use only in the case of extreme emergencies and is manually started.

Dragline

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For use with the Model T-35 BANTAM... the latest development in shovel-cranes.

LIFTS 12,000 LBS.!

LOW PRICED ONLY $12,750

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Lower price if Crane Carrier Extras such as double out-riggers and fenders not desired. (Price subject to change)

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This, too, is ALL NEW!

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5-ton . . . ⅜ cu. yd.

Yours for only $10,330

Complete Crawler Back Hoe with 30" bucket, f.o.b. Factory. (Price Subject to Change)

Now . . . BANTAM Offers Any Type of Mounting You Want

The versatile, job-proved BANTAM which has established enviable records of economy on all kinds of lifting and excavating jobs everywhere is now available with a wide choice of mountings, letting you select the best suited combination to handle your jobs faster and at far less cost.

Today, you can get a BANTAM with a brand new, all-new Crane Carrier as illustrated . . . or mounted on a factory guaranteed re-built truck. Or, to save yourself more money, a BANTAM can be field-mounted on YOUR TRUCK.

But, that's not all! Then, to meet your needs for a top quality, low-priced ⅜-yard crawler shovel-crane, Schield BANTAM now offers the new Model C-35 . . . it's the revolutionary crawler everyone's talking about! And, best of all — no matter which type of mounting your work calls for, the complete BANTAM with any one of 9 fast-change front-end attachments is still the lowest priced, ⅜-yard, 6-ton shovel-crane on the market.

Investigate the BANTAM method . . . find out how a BANTAM lets you bid lower and get more work. Ask for a free demonstration on your job. See your nearest Schield BANTAM Distributor or contact the factory, TODAY!

SCHIELD BANTAM CO.
234 Park St., Waverly, Iowa

T-35 with Crane Carrier for fast job-to-job moves

T-35 BANTAM mounts on factory re-built 6 x 6 or on Your Truck.

ANOTHER NEW PRODUCT OF THE SCHIELD Bantam Co.

WORLD'S LARGEST PRODUCERS OF TRUCK-CRANES AND EXCAVATORS

Improved Swimming Pools

Pool building is a highly specialized business from a design, construction and equipment standpoint. Pressure Concrete Co. will work with municipalities from the preliminary survey to the construction, furnishing and installation of the mechanical equipment.

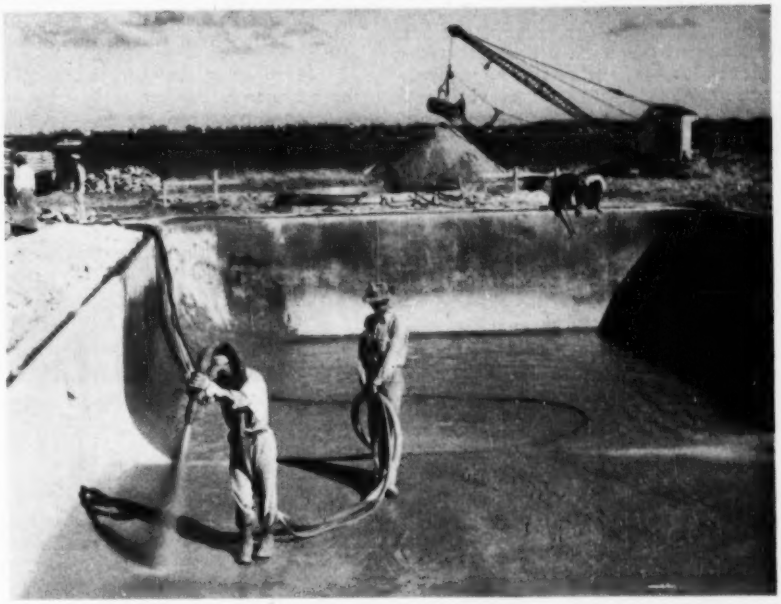
This company builds pools of Gunite or pressure applied concrete, which is some 2½ times stronger than ordinary concrete, and has greater density. The pool walls require no forms and are rounded into the floor at the bottom, eliminating footings. Because there aren't any corners to collect dirt, operational and maintenance costs are reduced to a minimum.

The first step in construction is the excavation for the pool. The fine grading in the pool follows, then the steel reinforcing is placed, inlet and outlet fittings are set, and the Guniting of the pool structure begins. When completed, a white cement lining or a chlorinated rubber base paint is applied to the interior pool surfaces. The filters, custom designed to meet all health requirements, are then assembled. All piping is connected, and the pool is filled with water. Each of these construction steps is handled by the Pressure Concrete Co., and the pool is delivered complete and ready for use.

Repair of Existing Pools

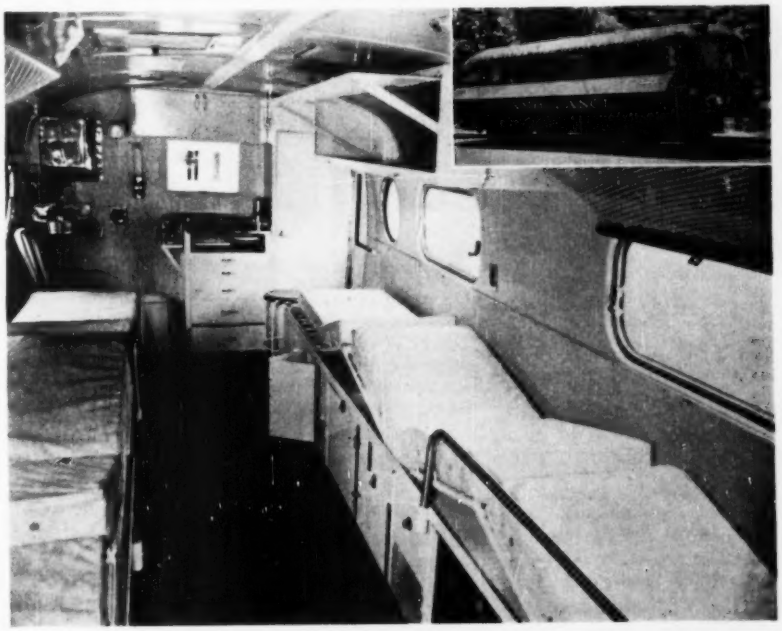
What about existing pools? Perhaps there are disintegrated areas in the walls and bottoms which successive hand patching cannot cure. The company has reconditioned and modernized many swimming pools throughout the country. The repair is done with Gunite. A new filter plant can be furnished and installed, underwater lights placed in the pool walls, and diving boards and ladders supplied. The result is a completely modern pool at a fraction of the cost of a new swimming pool.

Swimming Pools, an informative 8-page booklet, will be furnished by the Pressure Concrete Co., 315 S. Court St., Florence, Ala. Write directly, or you may use the Post Card on the colored page in this section. Circle No. 184.



Swimming pools built by the Pressure Concrete Co. are made of Gunite, considered about 2½ times stronger than ordinary concrete.

New York City's Special Disaster Coach



This interior view of the New York Fire Department Disaster Coach shows the six hospital type cots, the sterilizing equipment and the ample space. The coach is designed by Flxible Co., Loudonville, Ohio, well-known maker of standard-type and custom buses, and is equipped in the rear with a 110-volt Kohler generating unit.

Consulting Engineers Get New Associate

Stephen D. Teetor has been made an associate of the firm of Seelye Stevenson Value & Knecht, Consulting Engineers located at 101 Park Ave., New York 17, N. Y. He'll have charge of foundations, soil mechanics, inspection and research.

Reflectorized Street Signs Aid Traffic Improvement

The tendency toward more and faster moving traffic is causing many cities throughout the country to initiate improved street traffic programs with emphasis on long-range visibility. These programs call for the use of reflectorized street signs and markers that offer day and night visibility, regardless of weather conditions.

A good reflex reflective sheeting is Grotelite SS, which is made up of thousands of minute lenses uniformly distributed over its surface. These small, hard lenses form an integral part of the sheeting surface, discouraging the adhesion of foreign substances, and insuring the motorist good visibility, at great distances, under the severest weather conditions.

Effective use of reflectorized signs is outlined in *The Manual on Uniform Traffic Control Devices*, which recommends turning the signs slightly toward the street or road to keep the incident angle of the motorist's headlight beams near 90° throughout the range of useful visibility. On grades, suggests *The Manual*, improve the viewing angle by tilting the sign forward or back from the vertical.

Complete information on Grotelite SS, and how it will help improve traffic conditions in your community, is available in literature from The Grote Mfg. Co., Bellevue, Ky. Write directly, or you may use the Post Card located for your convenience on the colored page in this section. Circle No. 190.

It takes a FULL team
...whether it's mushing
...or digging equipment
1. This is for big jobs
2. This is for medium jobs
3. Sherman for all other jobs
On many excavating jobs the use of big equipment is costly and time-consuming. The Sherman Power Digger is designed so that you get all the advantages of power digging on these jobs. Thousands of users have proved that the Sherman Power Digger reduces costs. Write today for descriptive literature D-48.
Designed, Engineered and Manufactured Jointly by
SHERMAN PRODUCTS, Inc.
Royal Oak, Michigan
WAIN-ROY CORPORATION
Hubbardston, Mass.
Patent No. 2,303,825
Other patents pending
Sherman
PRODUCTS, INC.
ROYAL OAK, MICHIGAN

Reseat That Leaky Valve

With the Skinner-Seal Valve and Bibb Reseater the costly work of tearing out and renewing leaky valves and fixtures is avoided. The tool reseats flat and tapered seat globe or angle valves, and, in addition, almost all types of faucets.

Bar type cutters operating under screw feed leave worn, scored seats glass-smooth, level, and tight. Low spots on the seats, grooves, uneven places, have no effect. The cutter rotates on an even plane and is advanced by slight turns of the feed screw until the job is done.

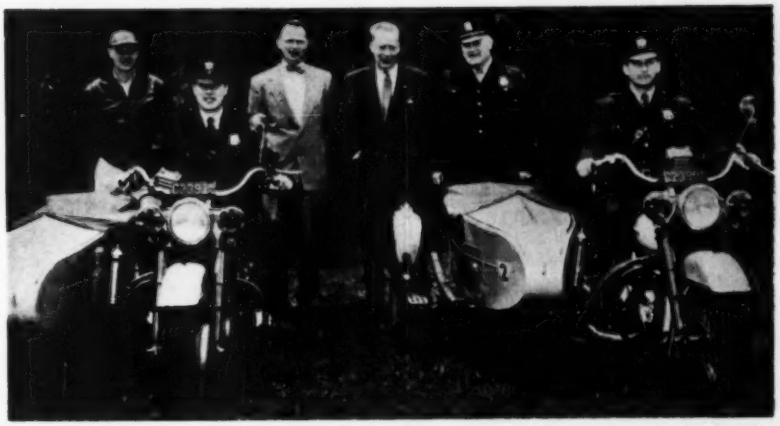
Threaded taper sleeve in bonnet, combined with ball-bearing guide below cutter, insures perfect alignment.

The reseater is now packed in a new black and green, fitted Styrene plastic case that provides individual wells and grooves, with part numbers stamped in each, for every item in the kit.

The M. B. Skinner Co., South Bend 21, Ind., makes this outfit in two sizes. The 2-in., taking ½- to 2-in. valves and ¼- to ¾-in. bibbs, and the 3-in. taking ½- to 3-in. valves and ¼- to ¾-in. bibbs. The 2-in. size can easily be expanded later to the 3-in. size by ordering the parts identified by the empty wells.

Complete details are available from the company. Write directly, or take advantage of the Post Card in this section. Circle No. 199.

Bound Brook, N. J., Strong for Motorcycles



The Bound Brook police force uses these Harley-Davidson Motorcycles to patrol the community's parking meters.

An enthusiastic user of Harley-Davidson police motorcycles is the Bound Brook, N. J., police force. Police Chief Otto A. Williams (fourth from left), who recently completed 31 years of service, introduced these vehicles to the force in 1922.

Others in the photo (standing, left to right) are: Otto W. Williams, Harley-Davidson dealer in Bound Brook; Police Commissioner William F. Gehring; and Mayor Thomas H. Warwick. Seated on the motorcycles are Patrolmen Charles Mielnicki and Arthur S. Harabin.

"We use these machines for parking meter patrol, and, in the residential sections, for routine patrol work," reports Chief Williams. "The operating cost has been negligible and the radio, indispensable to Bound Brook's police force.

The Harley-Davidson Motor Co. is located at Milwaukee 1, Wis. For detailed information on the company's police motorcycles, write directly to the manufacturer, or use the Post Card located for your convenience on the colored page in this section. Circle No. 207.

LOW COST Kato-Nokes Snow Loader

loads 6 cubic yards in 55 seconds!

At last—an economical, fast-acting snow loader that can be attached to the front end of a truck! No longer is bulky, expensive snow removal equipment necessary.

The *new* Kato-Nokes Snow Loader cleans up 7 cubic yards of snow per minute! No blinding snow dust! No delay! Kato-Nokes loads an average truck in 50 seconds. No auxiliary engine is needed. Power is supplied by the truck engine. Kato-Nokes detaches readily, freeing the truck for other jobs.

Tested and highly approved, Kato-Nokes is the low-cost way of licking the snow problem for cities, towns, rural areas and government agencies. For more information, mail the coupon below today!

Kato-Nokes can be attached to any truck 1½ tons or larger . . . can be detached in a few hours. Operates any level to 12" high. Hydraulically operated by controls in driver's cab. Safety features prevent damage to parts. Adequate gear reduction insures proper running speeds.

Valley Machine Co.

MANKATO, MINNESOTA

Valley Machine Company
1415 First Avenue
Mankato, Minnesota

Gentlemen: Please rush full information about the Kato-Nokes Snow Loader.

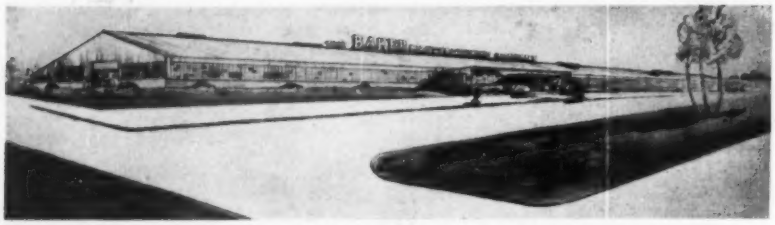
Name_____

Company or Affiliation_____

Address_____

City or Town_____ State_____

Baker Builds Plant in Beardstown, Ill.



New 40,000 sq. ft. manufacturing plant to be built by The Baker Mfg. Co.

A new 40,000 sq. ft. manufacturing plant, costing some $600,000 will be built by The Baker Mfg. Co. at Beardstown, Ill. Production at this plant will be confined to snow plows and emergency bulldozer parts, while Baker's main plant at 2573 S. 10th St., Springfield, Ill., handles the bulldozers and gradebuilders that are offered as standard and optional equipment on Allis-Chalmers' crawler tractors.

According to W. Converse Staley, president of The Baker Mfg. Co., the Beardstown plant will be located on a 20-acre tract on the Eastern edge of the city. It will be constructed of steel and brick from a design made by the Luria Co. of Cleveland, Ohio.

Quad-O-matic

FOR GARBAGE AND RUBBISH PICK-UP

Cities from coast to coast have discovered the economies of the bigger, advance design all-aluminum "QUAD".

Your communtiy can save money, too.

FASTER LOADING! FASTER DUMPING!

20% GREATER CAPACITY

•

PRACTICAL "CENTRIFUGAL" PACKING

As loaded bucket reaches top it swings over with extra force, pitching contents down on accumulated refuse. This repeated crushing, packing action by each dumping bucket assures a solid maximum load.

Some good territories still open for representation

EQUIPMENT MFG. INC.

21550 Hoover Road

Detroit 5 • Michigan

WRITE FOR COMPLETE INFORMATION

Easily Converted Truck Shovels

Quick-Way's new Model L-2 truck shovel features a great many interchangeable parts.

A new line of truck shovels is offered by the Quick-Way Truck Shovel Co., 4002 Josephine St., Denver, Col. Each model is available with five booms and may be easily converted into a crane, trench hoe, front dump shovel, and scoop.

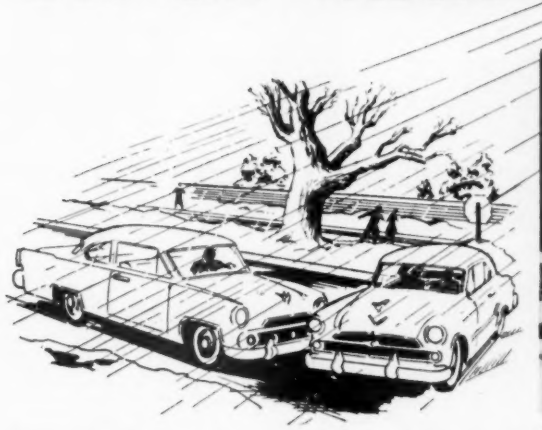
Quick-Way's truck-mounted equipment includes the L-2, a ½-yd. shovel, 10-ton crane; the E-2, 4/10-yd shovel, 7½-ton crane; the S-2, 1/3-yd. shovel, 5-ton crane; and finally, the J-2, a ¼-yd. shovel, 3½-ton crane. Each of these units has a steel cab with safety glass offering 360° vision, and controlled ventilation.

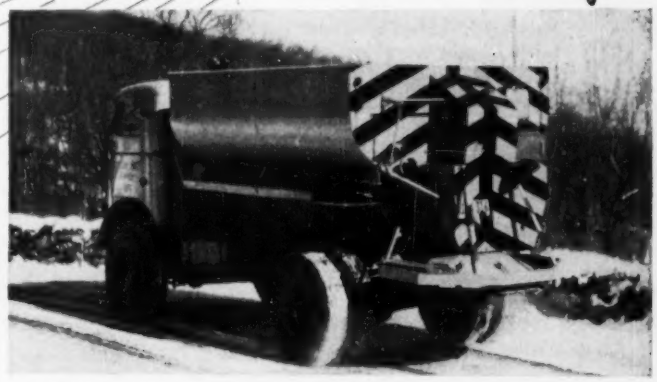
A variety of attachments suitable for handling large and small jobs, are available with each boom. These include: the hammer drive clam, dragline, clamshell, magnet, pile driver, hay fork, log grapple, and back filler blade. Also a telescoping boom, and skull cracker.

A detailed description of the many valuable features found in Quick-Way's small capacity truck shovels is available on request from the manufacturer. Write directly, or you may use the Post Card located for your convenience on the colored page in this section. Circle No. 185.

Hi-Way ICE CONTROL Method Shows You the Best Way to--

"PULL THE TRIGGER" ON OL' MAN WINTER!





HI-WAY MODEL W—"SPREAD-ALL" designed and engineered for heavy-duty, year 'round spreading. Available in 7⅓ to 12⅓ cu. yd. capacities. Spreads any width from 4' to 70'.

Heres Real Help for the "General Staff" of any Community, large or small. "Know-How" for Your Winter Campaign against Ice & Snow

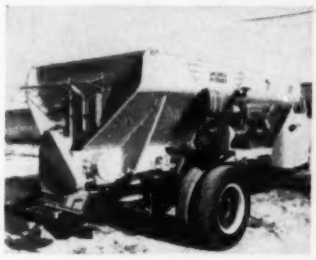
HANDLING CALLS from irate voters after winter storms are real headaches. And straightening-out traffic tangles takes up lots of time. Here's where Hi-Way's Ice Control Method fits into your picture. It's simple . . . it's inexpensive . . . it makes year 'round good sense!

With Hi-Way Spreaders, there's no waste materials . . . they all go where they're needed most . . . in uniform quantities. You'll find manpower goes further, too, as one man handles a spread job himself; other methods often took 2 or 3. And there are no costly breakdowns.

You'll find that Hi-Way Spreading Equipment does your job faster . . . making more miles of highways and streets safer per hour. They perform at speeds up to 35 MPH., spreading uniformly at any in-between-speeds.

When storm forecasts come in, your trucks can be ready-loaded for action. All you need do is call out the driver. And best of all, Hi-Way equipment is versatile. There's no summer idle period. It can be equally as efficient for seal coating, road stabilization and dust control with sand, stone, chips, rock salt or calcium chloride.

Your job will be easier with Hi-Way . . . the results more satisfying . . . the cost less . . . with added safety. Irate voters become happy voters, impressed with your good judgment.



HI-WAY MODEL E—all-purpose truck-mounted, self-unloading spreader, power-take-off or separate motor drive. 4½ to 7½ cu. yd. capacity.

HI-WAY MODEL DD—an all-season, low-cost portable tail gate spreader mounts on standard dump body, *quickly*, powered by rugged gas engine.

See Your HI-WAY DISTRIBUTOR or Write Factory for a Demonstration

HIGHWAY EQUIPMENT CO. Inc.
643 D Avenue N.W., Cedar Rapids, Iowa

Send me more information and specifications on these Hi-Way Spreaders; ☐ Model W—"Spread-All"; ☐ Model E—All-purpose, truck-mounted; and ☐ Model DD—Portable tail-gate mounted.

NAME _____

ADDRESS _____

CITY _____ STATE _____

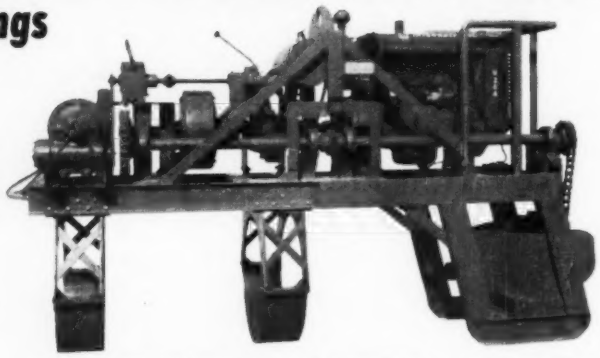
BULK FEED and GRAIN BODIES
LIME and FERTILIZER SPREADER
SELF UNLOADING TRANSPORT
MATERIAL SPREADERS TRACTION-TAILGATE-TRUCK MOUNTED

Manufacturers of the World's Most Complete Line of Spreaders and Bulk Material Delivery Equipment

Now you can bore road crossings without stopping traffic with

CROSE *Auger-Type* ROAD BORING MACHINE

Here's the fastest and most economical method of boring road crossings where rock is not encountered. No need to stop highway or rail traffic. Casing is installed as boring progresses—eliminates cave-ins. Absolutely prevents settling of concrete slab highways or railroad beds. Extremely accurate in alignment. Adaptable to all sizes of casing from 3" to 34". Send for illustrated folder.



• FOR PIPELINES • ELECTRICAL CONDUIT
• SEWERS • WATER LINES • CAST IRON PIPE

m.j. Crose MANUFACTURING COMPANY, INC.
2715 DAWSON ROAD • PHONE 6-2172 • TULSA, OKLAHOMA
Branch Offices in:
HOUSTON, TEXAS • AURORA, COLO. • NEW YORK, N. Y. • BIRMINGHAM, ALA.

Save time and get quick efficient service on pipeline equipment.

PHONE 6-2172 TULSA

Ferro street signs give you VISIBILITY — PERMANENCE

A welcome sign is "Ferro"—the instant answer to the question: "Where Are We?" Clean, clear, permanently brilliant "Ferro" signs are genuine porcelain enamel fused on finest quality steel. Embossed. **Always** easy to read.

Nationally known, tested, proved "Ferro" signs on any street, road or highway are **the sign of good government.**

Write today for full details.

FERRO ENAMELING CO.
1100—57TH AVENUE OAKLAND 21, CALIF.

POSITIONS OPEN

City of Woodstock, Ill.

City Engineer. Civil, Mechanical or Electrical, with street experience, $480-$575. Also interested in promising young engineer with less qualifications.

Superintendent of Public Works, $480-$575. Working superintendent of street, water and sewer field forces.

Lineman, $310-$420. Groundman to second class lineman, depending on qualifications. Write:

L. M. Lovejoy,
City Manager
Woodstock, Ill.

Shall Police Radio Systems be Leased or Owned?

One of the popular subjects of discussion at the National Associated Police Communications Officers' Convention at Detroit in October 1953, was the commercial lease and service contract threat to the independence of the police-owned and operated radio system. What is the Motorola position in this matter?

I believe unequivocally in the soundness and the desirability of maintaining independent police-radio systems owned and operated, and controlled exclusively, by the police services. I think the radio communications system is the nervous system of police control.

I would as soon be satisfied with an attempt to control my own body with my nervous system subject to the control of someone else, as I would attempt to operate an integrated and disciplined police service without commanding complete control of the two-way radio equipment. Obviously, I am limiting my discussion to police systems large enough to support one or more technicians or systems engineers. Special maintenance provisions are often necessary to handle the one or two units operated by small town systems.

All Motorola sales engineers have been instructed to sell police-radio systems and to resort to a leasing contract only when no other form of contract will be accepted. They have been further instructed to continue to exert salesmanship influence to reconvert any lease contracts back to independent police-owned and controlled systems.

The men who are responsible for the maintenance and for the efficiency of the operation of police-radio systems can do more to protect the independence of such systems than any other group of individuals in the country. A system is vulnerable to the lease proposal only when it is not maintained at a reasonable cost and at a high degree of efficiency. The men who are operating inefficiently or with featherbedding are not only jeopardizing the independence of their own systems, but they are weakening the position of every independent police system in the country. Most police radio engineers can defeat leasing proposals on the strength of their efficient service and maintenance.

I don't believe that the lease contract has a chance in 90% of the police-radio systems of the country, but the maintenance men in the 10% better make sure their costs are not so high that the city fathers will jump at the chance to save money on a lease and maintenance approach.

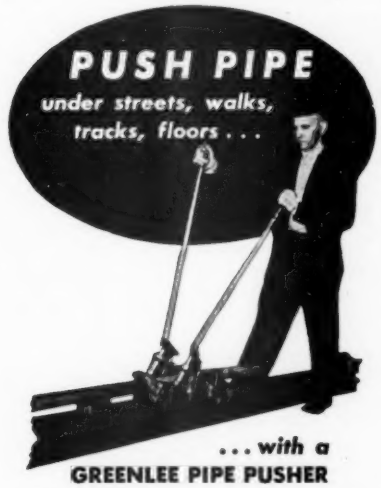
EUGENE S. GOEBEL
National Sales Manager
Motorola Communications and Electronics Inc.

Pump Companies Merge

A. S. Marlow, Jr., president of Marlow Pumps, Ridgewood, N. J., announces the merger of that firm with the Bell & Gossett Co., Morton Grove, Ill. Marlow, reported the world's largest manufacturer of self-priming centrifugal pumps, will be known as the Marlow Div. of Bell & Gossett.

According to Mr. Marlow, his company will continue its present line under the Marlow name. Bell & Gossett products, too, including the company's hot water circulating pumps, universal pumps, heat exchangers, etc., will retain their individual identity for sales, marketing, and distribution purposes.

Mr. Marlow will serve as new general manager of the Marlow Div., also as vice-president and a member of the board of directors of Bell & Gossett.



. . . with a
GREENLEE PIPE PUSHER

Speed jobs with this quick, simple way to install underground pipe. With the GREENLEE *one man* pushes pipe under obstacles . . . no tearing up of pavement, floors, lawn . . . eliminates extensive ditching and tedious backfilling! Two models and special power pump to fit your various jobs. Write for facts today.

GREENLEE

Greenlee Tool Co., 2032 Columbia Ave., Rockford, Ill.

DAY IN and DAY OUT Your Unconditionally Guaranteed
Davis Loader

WILL DO MORE JOBS BETTER THAN ANY OTHER LOADER
There's no time out for this work horse. Convenient attachments give it year 'round useability. Exclusive features such as 12-minute attachment, box frame construction oil filter, adjustable arms that keep bucket in correct position with ground and others make it your best buy.

BUSTS CONCRETE, ETC.
The handy concrete buster is made by simply attaching a chisel plate to post driver hammer. Has multitude of uses.

SHOVELS AND LOADS
Leaves, snow, dirt, and trash are easily cleared and loaded with either material or utility bucket.

DRIVES POSTS
Powerful post driver can be operated by one man. Drives 10' high to 5' below ground.

LIFTS BULKY MATERIAL
Heavy-duty crane is invaluable for lifting all types of bulky material.

DOZES
Dozer has 62" blade. Skid shoe extends full length. Permits hydraulic control of bite.

SEND THIS COUPON FOR COMPLETE FACTS
Dept. A
Please send me literature on the Davis Loader to fit a _____ model tractor.
NAME _____
ADDRESS _____
CITY _____ STATE _____

MID-WESTERN INDUSTRIES, INC. 1009 S. WEST ST., WICHITA, KAN.

Ten RCD-12 Crouse-Hinds floodlights, spaced 12 feet apart, illuminate this parking area.

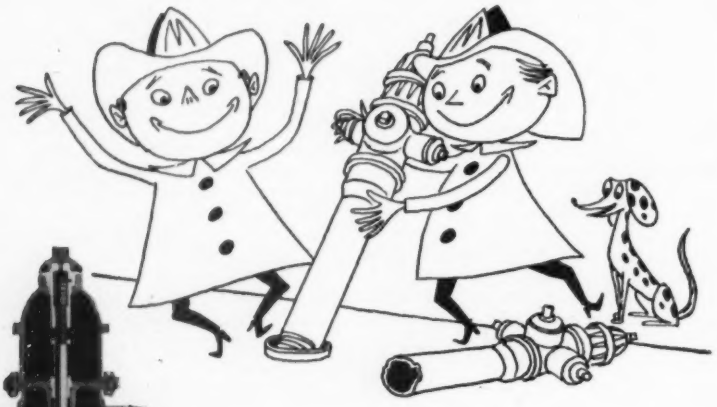
Lights Areas Next to Buildings

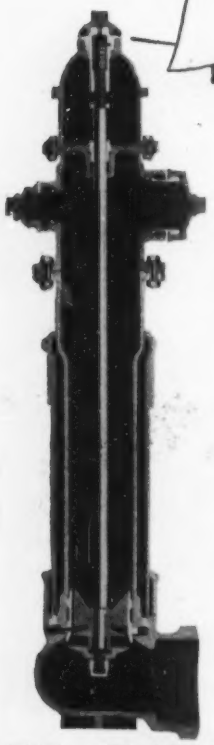
Lighting tunnels and underpasses is only one of the functions performed by this flush-mounted floodlight, designed by Crouse-Hinds Co. Designated Type RCD-12, the new fixture will also light parking areas adjacent to buildings and grounds next to building entrances, roadways, or walks.

Mounted 10 feet above a roadway, one of these 115-volt floodlights, equipped with a 300-watt clear bulb, is said to deliver up to 38 foot-candles of light on a horizontal surface 30 feet away from the center of the floodlight. By properly spacing the units, any required illumination level may be achieved.

The RCD-12 is made up of cast aluminum housing, a 12-in. Alzak reflector and a 12-in. diffusing impact and heat resisting glass lens. The two types of reflectors available, are etched Alzak for short range, and narrow beam polished Alzak for long range.

Detailed literature describing the new floodlight is available on request from the Crouse-Hinds Co., Syracuse 1, N. Y. Write directly, or take advantage of the Post Card located for your convenience on the colored page in this section. Circle No. 179.





No other hydrant is so inexpensive to maintain— so quick and easy to repair

- The Mathews Hydrant is so simply and soundly constructed that there's virtually nothing to go wrong.
- Only one point needs lubrication—the operating thread—and that only during routine inspections.
- A Mathews Hydrant broken in a traffic accident can be quickly repaired *without excavating* and nozzle levels can be adjusted with the same ease.
- For community fire protection, rely on Mathews Hydrants, the standard of the industry.

MATHEWS HYDRANTS

Made by R. D. Wood Company

Public Ledger Building, Independence Square, Philadelphia 5, Pa.

Manufacturers of "Sand-Spun" Pipe (centrifugally cast in sand molds) and R. D. Wood Gate Valves

150th anniversary

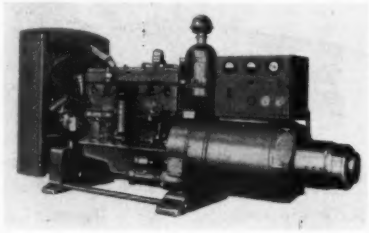
NO OTHER HYDRANT OFFERS SO MANY ESSENTIAL FEATURES

Compression type valve prevents flooding • Head turns 360° • Replaceable head • Nozzle sections easily changed • Protection case of "Sand-Spun" cast iron for strength, toughness, elasticity • All operating parts contained in removable barrel • A modern barrel makes an old Mathews good as new • Available with mechanical-joint pipe connections

Assures Dependable Emergency Power

An electric generating set is offered that delivers a full rated 50,000 watts at 80% power factor with an ample overload capacity. Driven by an International Harvester gasoline engine, this generator supplies either heavy-duty primary or emergency standby power.

An unhoused unit, the new 50-kw, 62.5KVA plant has a voltage regulation of plus or minus 2%. The engine delivers 104-hp at 1,800 rpm, has a 450 cu. in. piston displacement, and is protected by a low oil pressure cut off.



Model 50KA Electric Plant.

D. W. Onan & Sons Inc., 8360 University Ave., S.E., Minneapolis 14, Minn., will furnish complete information on Model 50KA. For *Form A-301,* write the company direct, or you may use the Post Card on the colored page in this section. Circle No. 195.

Warning Signs Featured at Safety Congress

At a recent 41st National Safety Congress and Exhibition, Eastern Metal of Elmira, Inc., outlined its new safety sign warning program aimed at protecting the motorist in dangerous areas. Prominent in this program, is the firm's new Senior A Stand.

The large Eastern A Stand provides the motorist with advance warning, important because it allows him enough time to slow down before reaching a work area. It is particularly valuable to the bus or truck driver, who is seated too high to see smaller warning signs. He is instantly attracted by an Eastern sign, housed in the metal A Stand, and highlighted by two red flags mounted diagonally. At night he is guided by Eastern reflectorized signs, which offer 24-hour visibility.

Each A Stand weighs 13 pounds, and is easily folded and carried from place to place. These stands are available with eight interchangeable legends. The signs swing back and forth freely, and the stand itself, is unaffected by heavy winds.

Communities interested in an adequate safety sign warning program should write directly to Eastern Metal of Elmira, Inc., Elmira Heights 1, N. Y., or use the Post Card on the colored page in this section. Circle No. 180.

Trujillo, Peru, Solves Its Water Problem

Trujillo, Peru, gets its water from eight wells, each 100 feet deep, which individually produce about 300 gallons each mintue. Recently, the municipality was confronted by a minor crisis. The Trujillo Electric Light and Power Co. was unable to supply power, and water was strictly rationed.

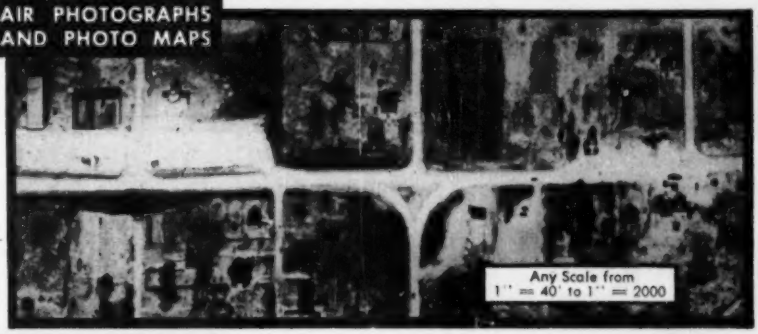
Rehabilitating the community's water supply service was a job that went to the Ministerio de Fomento y Obras Publicas. Here it was decided to use two Caterpillar Diesel D364 Electric Sets which would supply the necessary 500 volts at 50 cycles to drive the Klein pumps. This installation was taken over by the government after the sets had been working alternately around the clock. Actually, only one D364 is needed to operate the eight pumps, however both units will work together when Trujillo adds more pumps to the existing service.

The Caterpillar sets are equipped with two switch boards containing Oerlikon type R.O. automatic regulators. Engines are cooled by a cooling tower using one electric motor-driven pump for raw water circulation. Speed of the sets is controlled by the frequency, which accounts for the double scale frequency meters found on the control panels. One scale is for the bus-bars and the other for the incoming engine.

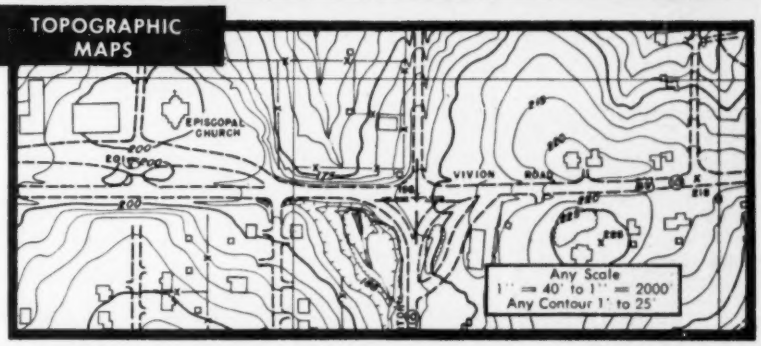
Municipalities faced with similar problems can learn more about these effective electric sets by writing Caterpillar Tractor Co., Peoria 8, Ill., or through use of the Post Card located on the colored page in this section. Circle No. 178.

The SUCCESS
OF YOUR PROJECT DEPENDS UPON THE ACCURACY AND COMPLETENESS OF YOUR BASIC MAP INFORMATION

AIR PHOTOGRAPHS AND PHOTO MAPS



TOPOGRAPHIC MAPS



With proper maps, planners and engineers have at their finger tips, the answers to many of the problems of sewer, waterworks, drainage, flood control, street alignment, and expressway location.

Whatever your project, you will find that good maps pay dividends — and when produced by Jack Ammann Photogrammetric methods you will have them in less time and at a saving in cost. Write today for brochure.

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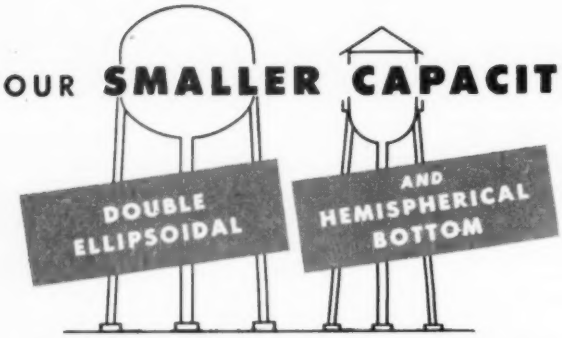
PHOTOGRAMMETRIC ENGINEERS
BROADWAY AT TENTH · SAN ANTONIO 5, TEXAS
AIR SURVEYS—MAPS

Eastern Office: 32 Hillcrest • P. O. Box 411 • Phone Manhasset 7-1840 • Manhasset, N. Y.

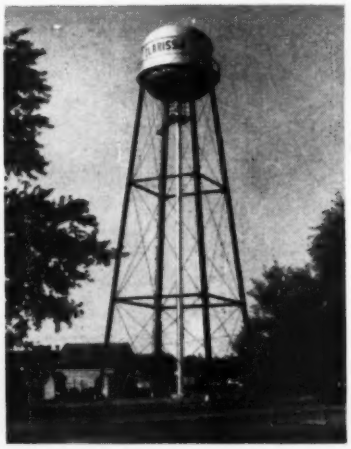
FOR YOUR **SMALLER CAPACITY** WATER STORAGE NEEDS



Elevated Steel Tanks by PITTSBURGH-DES MOINES

25,000 GALLONS
Boxholm, Iowa

150,000 GALLONS
Hamilton, Ohio



50,000 GALLONS
Clarissa, Minn.

200,000 GALLONS
Berlin, Md.

60,000 GALLONS
Grand Rapids, Mich.

75,000 GALLONS
Brookshire, Tex.

100,000 GALLONS
Montross, Va.

50,000 GALLONS
Wolcott, Ind.

100,000 GALLONS
Henrico County, Virginia

Our Double-Ellipsoidal and Hemispherical Bottom Elevated Steel Tank types offer efficient, low cost water storage throughout the lower capacity range. Standardized in design, completely dependable in operation, these units provide maximum value in better water storage for the smaller community. Consultations gladly arranged on your requirements.

PITTSBURGH • DES MOINES STEEL CO.

Plants at PITTSBURGH, DES MOINES and SANTA CLARA

Sales Offices at:

PITTSBURGH (25) . . . . . 3412 Neville Island
NEWARK (2) . . . 215 Industrial Office Bldg.
CHICAGO (3), 1216 First National Bank Bldg.
LOS ANGELES (48), ... 6399 Wilshire Blvd.
DES MOINES (8), 913 Tuttle Street
DALLAS (1), 1217 Praetorian Bldg.
SEATTLE . . . . . 520 Lane Street
SANTA CLARA, CAL., 619 Alviso Road

Easier Steering for Heavy-Duty Trucks

Connected with the Air-O-Matic Power Steer Booster, this new control valve offers truck operators safe steering assistance on any road, in traffic, and in maneuvering in and out of loading dock areas.

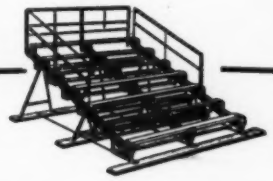
The valve is mounted on the truck steering column for right or left hand operation, and operated by a lever extending outward from the valve. To get the degree of steering assistance he wants, the driver simply moves this lever up or down. His eyes remain on the road, his hands, on the steering wheel.

Designed by the Air-O-Matic Power Steer Corp., 24 Noble Court, N. W., Cleveland 13, Ohio, the new valve controls the operation of the Air-O-Matic

Power Steer Booster, an automatic steering unit powered by compressed air. Made of rust-resistant anodized aluminum, it is installed between a stationary part of the truck and a movable portion of the steering linkage. The booster, say company officials, will neither jam nor freeze. There are no reservoirs to fill, no costly pumps to replace, and there is no fluid to leak away.

Additional information on valve and booster will be supplied by the manufacturer. Write directly, or use the Post Card on the colored page in this section. Circle No. 186.

★ ★



Single Section Model 6 Portable Bleacher

PORTABLE SEATING FOR EVERY OCCASION

With Hussey Patented Portable Steel Bleachers and Grandstands, one set of seats will take care of both your indoor and outdoor needs. They cannot collapse and can be erected and taken down faster and easier than any other stand on the market. Low in cost. 6, 10 and 15 tier 12 foot sections IN STOCK. Other sizes made to order.

FREE catalogs and complete information on request. Write today.

Iron-workers HUSSEY Since 1835

HUSSEY MFG. CO., INC.
536 R. R. Ave., N. Berwick, Maine

Also mfrs. of Water Sports Equipment, Flag Poles, Fire Escapes and Misc. Iron.

American Vacuum Leaf Loader
Solves your leaf or clean-up problem

Write for leaflet
LEAF LOADER DIVISION
American Structural Steel and Tank Co.
21050 W. 8 MILE ROAD DETROIT 19, MICH.

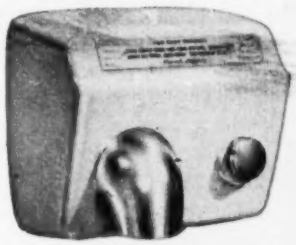
***Why did* CLEVELAND MUNICIPAL STADIUM *install* OVER 30 NATIONAL HAND DRYERS?**

One of the growing number of municipal installations. This view of one of the washrooms in the Cleveland, Ohio, Municipal Stadium is an excellent illustration of the attractive neatness which results.

Many National Hand Dryers have also been installed in the principal airport terminals throughout the United States.

To reduce maintenance cost. National Hand Dryers eliminate cost of towels, storing of towels, filling cabinets, disposing of towels, cleaning washrooms, plumbing service.

To secure improved sanitation. Impartial tests conducted by the U.S. Health Service prove conclusively that National Hand Drying is far more sanitary than hand drying by any other method. Ask for complete Public Health Report.



...dries hands completely dry in 20 seconds!

Do you really know how much your washroom service is costing you? Save 85c out of every $1 you are now spending for washroom maintenance. Fill in coupon and attach to company letterhead for complete information.

NATIONAL DRYER SALES CORPORATION
616 West Adams Street, Chicago 6, Illinois

Send me the facts. Cost comparison of towels vs. National Hand Dryers, Public Health Service Report and descriptive literature. AC 3-12

Name_____ Title_____

Company_____

Address_____

City_____ Zone_____ State_____

Remington Rand Methods News

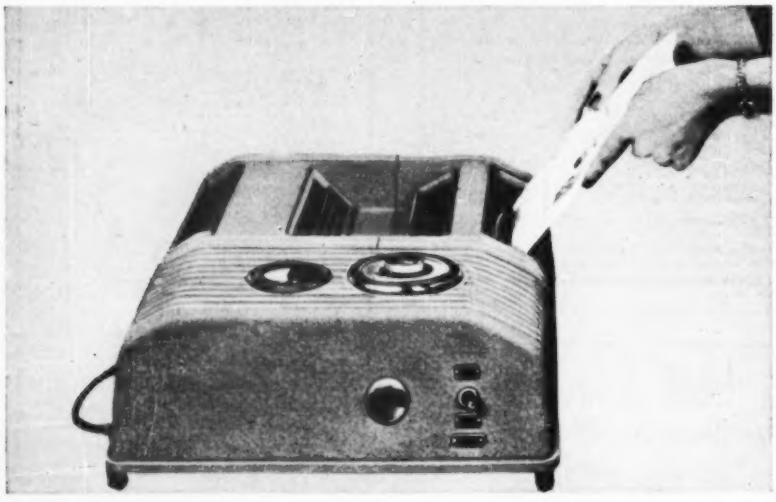
Wayne County Microfilms For Rapid Reference, Greater Record Protection, Maximum Use of Space

Wayne, Michigan's most densely populated county, is putting literally millions of records and documents—accumulated over 150 years—on microfilm. This project will give the County the first and only complete "record audit" in its history. The County's Board of Auditors will then achieve a cut of 86% in searching time, maximum protection of records against loss or misplacement, and a saving of 99% on valuable storage space.

Remington Rand Film-a-record cameras and processing, reference and housing equipment were selected only after the County had made exhaustive comparative tests on their own premises, plus extensive studies of other microfilming installations. Simplicity of operation, an important factor in their equipment choice, permits the handling of the entire job by the regular County staff. For further details on this complete program and its benefits, see folder **F-262.**

Huge New Jersey Turnpike Accounting Job Rolls Along With Remington Rand Punched-Card Equipment

As many as 80,000 punched-card toll tickets like the one shown above are used daily on the New Jersey Turnpike. Fed into Remington Rand Punched-Card Accounting Machines, they produce reports of all kinds needed by the accounting, traffic and statistical departments — at 6000 lines an hour per machine. The system affords positive safeguards over revenues collected, at the lowest possible operating cost. For further information, call your nearest Business Equipment Center or circle *N. J. Tnpke.* in coupon below.



Accurate, Black-On-White Photocopies of Records In Seconds With Transcopy Duplex

Deeds, plot diagrams, wills . . . no matter what record must be copied, Remington Rand's new Transcopy Duplex will do the job in seconds. Records may be written, printed or drawn, one or two-sided, opaque or translucent, of any length and up to 14½" wide. No chemicals, running water or darkroom are required; copies are exposed, developed and printed all within this single unit. Anyone can become an expert operator in a few minutes. See Folder **P-344** for full details.

County Boosts Production With Remington Electrics

The Mecklenburg County Department of Public Welfare at Charlotte, N. C., writes: "Our initial installation was for three machines . . . since the purchase of these Remington Electric Typewriters there has been a substantial improvement in the morale of these typists and a 27% increase in production." Profit by this experience. Read the full story in **RE-8515** and folder **RE-8499.**

Remington Rand INC

Profit-Building **IDEAS** For Business

Management Controls Reference Library
Room 1513, 315 Fourth Avenue, New York 10

Please circle literature desired:

N. J. TNPKE P-344 F-262
RE-8515 RE-8499

Name_____

Title_____

Dept._____

Address_____

City_____ Zone____ State_____

G-1

A.P.W.A. Official Inspects Waste Receptacle

J. N. Mills, president of Mills Engineering Co., left, looks on as Don Herrick, executive director of the American Public Works Assn., inspects the Mills all-aluminum waste receptacle at the recent Association Congress held in New Orleans. The containers are made by the Mills Engineering Co., 672 S. Lafayette Park Pl., Los Angeles 5, Calif.

Radio Communication Equipment

Ten new bulletins issued by the General Electric Commercial Equipment Dept. describe latest improvements in some of the company's radio communication equipment for civil defense applications, and police and fire departments. They cover six base station combinations and four mobile combinations.

The base stations are 60-watt units for operation in the 25-50 megacycle band, and 50-watt units for the 152-174 MC band. There are three types in each band, designed for floor, desk and pole mounting.

The mobile combinations are for operation in the 152-174 MC band. They include two 10-watt units, a 30-watt and a 50-watt unit. One of the 10-watt combinations features the company's new front-mount control unit, designed to permit more convenient mounting under a dashboard or on materials handling vehicles, where space is critical.

The new bulletins are available from the Inquiry Section, G-E Electronics Div., Electronics Park, Syracuse, N. Y. Write directly to the company, or you may use the Post Card located for your convenience on the colored page in this section. Circle No. 189.

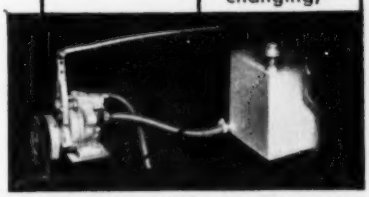
Which snow plow control will YOU choose?

Points to consider	Snowlift	Manual	Electric
1. Manpower needed	Driver only	Driver and helper	Driver only
2. Speed of raising and lowering blade	Instant (dash control)	Slow (hand pumping)	Fast to slow (battery)
3. Plowing efficiency	95%	25%	50%
4. Effect on plow lights	None	None	Dims with use
5. Blade wear	Very little	Excessive	Considerable
6. Cab noise	Quiet	Some	Noisy
7. Permanent installation	Yes	No—must be removed in summer	No—should be removed in summer
8. Maintenance	1 simple adjustment twice a year	Yearly overhaul	Extra batteries (charging & changing)

Studies of over 10,000 installations prove Snowlift

Saves an average of $100 per plow, per season

— in time, manpower and blade replacements!



Complete Snowlift Conversion Kit

— including Hydra-Clutch pump, mounting bracket, V-fan-belt, dash control, hoses, reservoir and ram — is quickly installed on *any truck or tractor plow* — new or used.

SEE YOUR SNOWLIFT DISTRIBUTOR NOW

N-SC-6N

NATIONAL LIFT COMPANY
Subsidiary Gar Wood Industries, Inc.
Customer Service Department
36203 Main St., WAYNE, MICH.

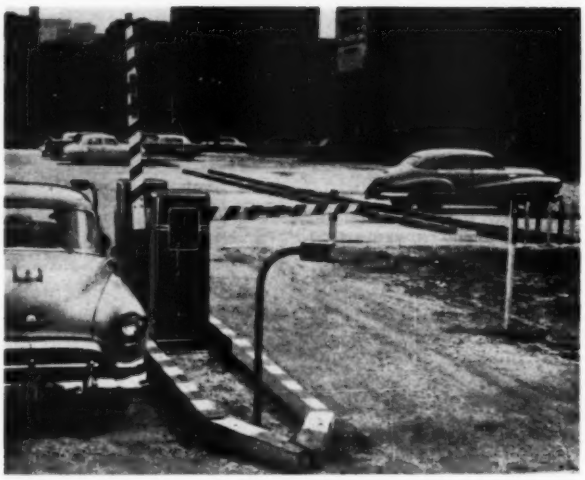
☐ Send free literature on National SNOWLIFT for installation on .....
.....
(Number and type of plows)
☐ Send name of nearest SNOWLIFT Distributor
Name ..... Title .....
Organization .....
Address .....
City ..... State .....

GAR WOOD GW INDUSTRIES

NATIONAL SNOWLIFT

— the snowplow control your drivers prefer

Better Parking Lot Operation at Less Cost



Without leaving his car, the tenant inserts his monthly card into the slot of the electronic control device.

Public parking lots located in congested metropolitan areas can use card-keys rather than attendants to assure smooth operation and full monthly rental collections.

By using an electronic device to control the entrance and exit gates, the Parcoa system sees to it that only those entitled to parking privileges are permitted to enter the lot. This mechanism, in turn, is actuated by a simple card that serves as a key to parking lot tenants. The entire operation is simple and foolproof.

The car drives up to the entrance gate; the tenant, without leaving the vehicle, inserts his card into the slotted face plate of the device, and the gate opens. As the auto proceeds into the parking lot, the gate closes automatically. This same operation takes place when the motorist leaves the lot.

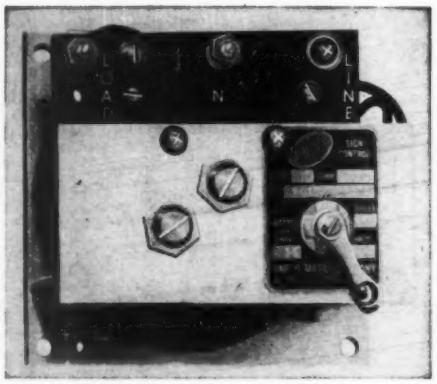
Parking lot officials can issue monthly cards with different code combinations, at the same time, changing the combination of the simple mechanism.

This inexpensive parking system has been devised by the Parking Corp. of America, 33 N. La Salle St., Chicago 2, Ill. For detailed information, write the manufacturer direct, or you may use the Post Card on the colored page in this section. Circle No. 196.

FLASHERS

For All Types Flashing Signals

- FLASHING STOP SIGNS
- LOADING ZONES
- WARNING BEACONS
- TRAFFIC ISLANDS
- SAFETY ZONES
- BRIDGE ABUTMENTS
- CAUTION SIGNALS
- DETOURS



Small, ruggedly and compactly constructed. Will operate in any position. Is not affected by extreme variations in temperature. Driven by slow speed induction disc motor. Bakelite cam actuates coin silver contacts. Flashing speed 50 to 60 F.P.M. Easily adjusted in field. Proven dependability for over twenty years. Available with or without built-in radio interference eliminators.

TIME-O-MATIC CO.

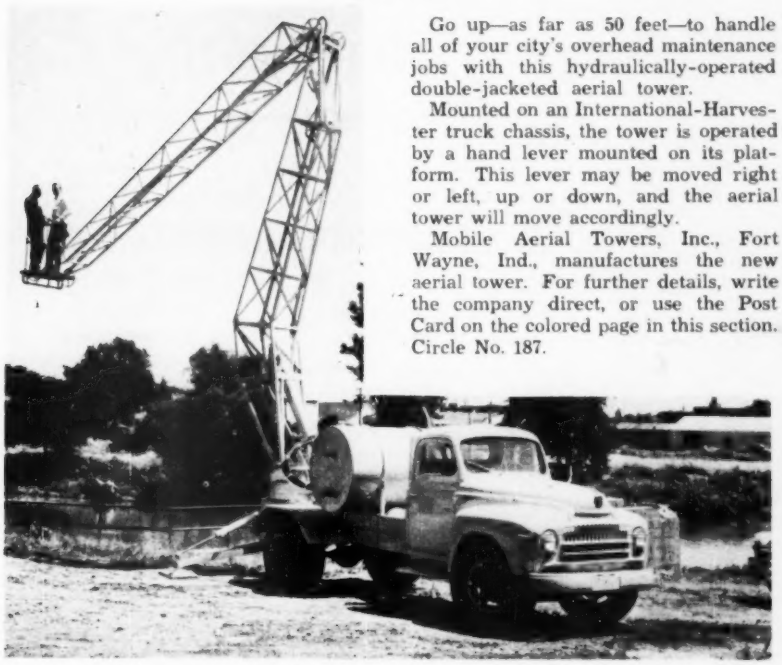
1100 BAHLS ST. DANVILLE, ILL.

City Planner Wanted,

will have responsible charge of planning in fast-growing city of 45,000. Requires degree in planning or engineering and four years' planning experience. Salary range $483 to $616 per month. Retirement system and other employee benefits.

Apply
Earl J. Miner
Assistant City Manager
P. O. Box 61
Bakersfield, California

Going Up?



Go up—as far as 50 feet—to handle all of your city's overhead maintenance jobs with this hydraulically-operated double-jacketed aerial tower.

Mounted on an International-Harvester truck chassis, the tower is operated by a hand lever mounted on its platform. This lever may be moved right or left, up or down, and the aerial tower will move accordingly.

Mobile Aerial Towers, Inc., Fort Wayne, Ind., manufactures the new aerial tower. For further details, write the company direct, or use the Post Card on the colored page in this section. Circle No. 187.

CLT

Tax Equalization Appraisals

Fifteen years of unduplicated experience of producing highest quality appraisals for tax equalization purposes.

Client list and brochure upon request.

COLE-LAYER-TRUMBLE COMPANY

11 West Monument Ave. • Dayton 2, Ohio

PROVABLE APPRAISALS SINCE 1938

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207 Investment Building, Pittsburgh, Pennsylvania
123 N. Poplar Street, Charlotte, North Carolina
415 Congress Street, Portland, Maine
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FISHER
M-SCOPE

SUPERIOR PERFORMANCE AND QUALITY

49-E MIDGET LEAK DET.
ONLY $67.50

54-AB PIPE-FINDER
ONLY $149.50

LEAK SURVEY UNIT
54-C ONLY $275.00

FREE CATALOG UPON REQUEST.

Fisher Research Laboratory, Inc.
PALO ALTO, CALIFORNIA

with GOLDAK EQUIPMENT
you KNOW you get PPD*

PIN POINT DETECTION

MODEL 620
BOX & VALVE LOCATOR

Pin Point Detection of Goldak's Model 620, saves you time and money, with immediate location of Buffalo Boxes, Valves, Covers and Buried Metals. Untiring operation, weighs only 8 lbs. Sturdily constructed, all-weather use. High quality parts assures maximum sensitivity, low operating and nominal replacement costs.

you get PPD* with Goldak Locators

*PIN POINT DETECTION

write for FREE literature and name of nearest dealer

The name GOLDAK, on electronic instruments, eliminates guesswork . . . your assurance of Pin Point Detection at all times, in any kind of weather. Throughout the world, with companies who need instruments that are accurate and durable, first choice is GOLDAK.

MODEL L46
SENIOR
LEAK DETECTOR

Detect costly leaks in water and low viscosity fuel lines, in their exact position. Completely portable, simple to operate. Latest electronic improvements and high quality parts, assures unequalled performance. Save time and labor, eliminate costly leakage with Goldak Model L46.

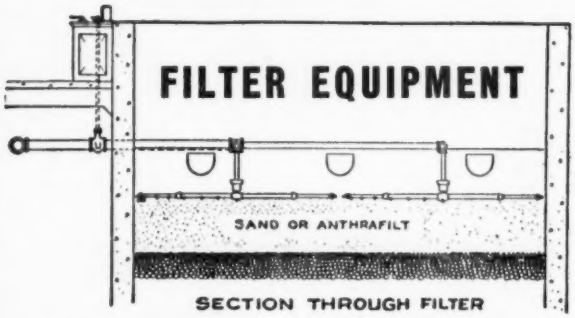
you get PPD* with Goldak Locators

*PIN POINT DETECTION

The GOLDAK Company
Leading Makers of PIPE LOCATORS
Since 1933

1544 W. GLENOAKS BLVD.
GLENDALE 1, CALIF.

PALMER



SECTION THROUGH FILTER

Filter Bed Agitator Advantages

- Requires an average of 40% less wash water
- Eliminates mud balls
- Prevents cracking and shrinking of the beds
- Produces "new" sand after short period of normal operation
- Enables you to increase filter runs up to 50%

Anthrafilt Advantages

- Doubles the length of filter runs attainable with sand and quartz media
- Requires one-half as much wash water
- Filters are out of service less because of the shorter wash cycle
- Coating, caking or balling with mud, lime, iron or manganese reduced to the minimum

Write for Circular

PALMER FILTER EQUIPMENT CO.
P. O. BOX 1655, ERIE, PA.

WORTHINGTON-GAMON

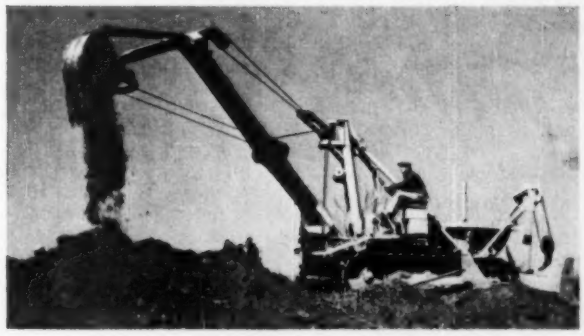
LIQUID METERS
All Sizes All Types

WORTHINGTON-GAMON METER DIVISION
Worthington Corp.
296 South Street Newark 5, New Jersey

New Excavating Film

An Excavator-Crane attachment for Caterpillar-built tractors is featured in the new 16 mm sound-color film, "Design for Excavating." The movie shows the Hystaway at work on D6, D7, and D8 tractors, and illustrates the attachment's quick change from shovel to backhoe, clamshell, crane, pile driver and bulldozer.

Municipalities interested in showing "Design for Excavating," are asked to write the Hyster Co., 2902 N. E. Clackamas St., Portland 8, Ore., or use the Post Card on the colored page in this section. Circle No. 191.



The Hystaway in action.

Printing Calculator

Model 99 Automatic Printing Calculator is the latest in Remington Rand calculating machines. The names of the new features are Simpla-Tape, Automatic Clearance, Constant Multiplication, and Total Control.

The tape provides positive proof of figurework accuracy and shows only the essential figures of each problem. The calculator clears automatically at the end of each problem, and the asterisk on the tape indicates that the machine is ready for the next problem. Constant multiplication is useful where the same number must be multiplied by a series of other factors such as different percentages. After multiplying by a percentage, a depression of the Constant Key re-indexes the number for multiplication by the next percentage factor.

The Total Control feature means that a flick of the total control lever holds the individual totals of each hours x rate extension, for instance, until the final listing.

For division, the dividend is entered first, then divisor, after which the "division" key is depressed. The answer, with remainder in red, prints on the tape and clears the machine.

For prices and demonstration, write Remington Rand Inc., 315 Fourth Ave., New York 10, N. Y., or use the Post Card in this section. Circle No. 197

REALOCK FENCE

saves you money

. . . Saves cost of extra guard personnel

. . . Cuts cost of ground maintenance

. . . Cuts down pilferage losses

. . . Makes possible lower insurance rates

. . . Guards against loss from burglary and vandalism.

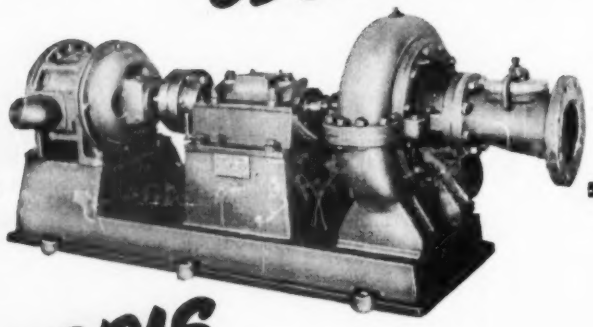
Consult your classified telephone directory for nearest sales office or write to any of our three division offices for free estimate or catalogue.

THE COLORADO FUEL AND IRON CORPORATION—Denver and Oakland
WICKWIRE SPENCER STEEL DIVISION—Buffalo

REALOCK FENCE
THE COLORADO FUEL AND IRON CORPORATION
CF&I
BRANCHES IN ALL KEY CITIES

2013

Even large solids pass WITHOUT CLOGGING!



MORRIS CENTRIFUGAL PUMPS

Specially designed to withstand tough operating conditions in any sewage plant.

Despite the severe operating conditions which occur in some sewage plants, the Morris Pumps continue to function dependably, efficiently and economically.

Morris Pumps will handle long, stringy, fibrous materials. Extensive experience in handling mixtures containing abrasive solids enables Morris to design for moderate quantities of grit, without undue impairment. Operation under abnormal conditions such as these prove unquestionably the rugged, superior construction of Morris Pumps.

Morris Pumps are Easily Installed... Easily Maintained...Easily Dismantled

Both the casing and the suction nozzle have hand holes . . . and the construction of the pump permits easy dismantling.

The castings are heavy. And the pumps are mechanically and hydraulically designed for greater resistance to abrasion.

Both the horizontal and vertical Morris Pumps are available in sizes ranging from 3" to 20" and adaptable to all types of drives.

Every pump is backed by 84 years' experience . . . carefully and practically tested for high sustained efficiency at low operating cost.

America's Largest Cities are Now Using Morris Centrifugal Pumps for More Dependable Service

Morris Machine Works, Baldwinsville, N. Y.
Offices in Principal Cities

MORRIS Centrifugal Pumps

New Coupling for Transite Pipe

For some time now, Johns-Manville engineers have been working on the development of a coupling that would speed the installation of Transite pressure pipe. The new coupling, they hoped, could be quickly assembled, even under the poorest trench conditions.

With the introduction of the Ring-Tite coupling, Johns-Manville has fulfilled these requirements. The new unit automatically centers, aligns, and provides for pipe expansion. It may be assembled in the trench, or by the belling-ahead method; under water, and in all temperatures.

Ring-Tite couplings consist of a sleeve of asbestos-cement and two rubber rings. The sleeve has two grooves cut circumferentially into the inner wall, which locate the rings accurately and hold them locked in position. To accommodate this sleeve, Transite pipe ends have been specially designed for simple insertion.

Ring-Tite pipe coupling assembly may be quickly completed entirely in the trench under all weather conditions.

Connecting pipe with the new Ring-Tite coupling requires several uncomplicated steps. First, the rings are popped into their grooves. Next, the pipe ends are spread with a Johns-Manville lubricant so that the elements will slide together easily. The pipe is roughly aligned and a puller attached. During assembly pipes slide under rings and slip along until movement is stopped automatically by shoulders on pipe. One simple pull completes the entire job.

Persons desiring additional data on Ring-Tite transite pipe couplings are advised to write directly to Johns-Manville, 22 E. 40th St., New York 16, N. Y., or to use the Post Card located for your convenience on the colored page in this section. Circle No. 193.

Avoid Pipe Deterioration

Lines of Tenite butyrate plastic pipe to be used as cable conduit are shown here during installation at a Community Public Service Co. substation in Pecos, Tex.

Installing an underground cable conduit at a new substation, the Community Public Service Co. of Pecos, Tex., used pipe extruded from Tenite butyrate plastic. These lines carry multiple control cables from a central control house to various switches and electrical equipment in the substation yard.

The Pecos site, according to company engineers, is one where strong alkali soil causes the early deterioration of metallic pipe. Butyrate pipe, on the other hand, resists soil electrolysis. Lightweight, it is simple and inexpensive to install; easy to join together with solvent-welded butyrate fittings.

The pipe and fittings for the Pecos installation were supplied by Elmer E. Mills Plastics, Inc. of Chicago, Ill. To get additional information on Tenite butyrate plastic, write Eastman Chemical Products, Inc., Kingsport, Tenn., or you may use the Post Card located for your convenience on the colored page in this section. Circle No. 181.

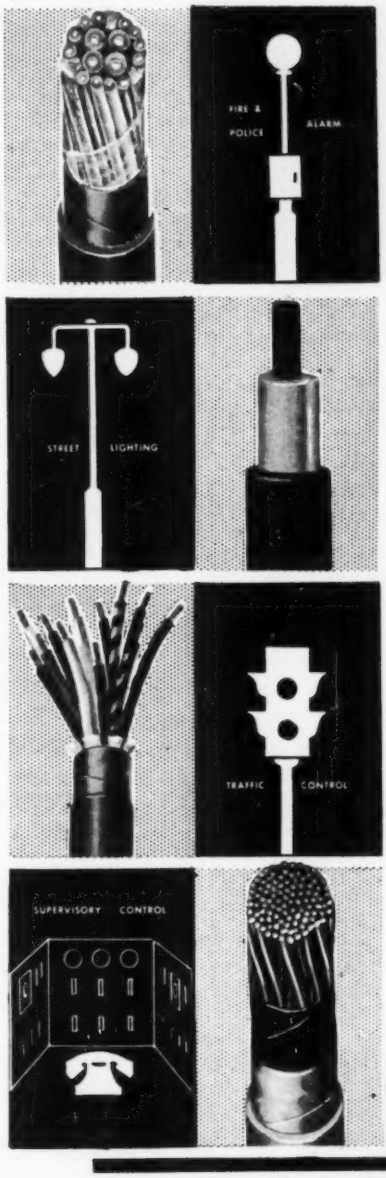
Gets Citation for Quieter Outboard Motor

The National Noise Abatement Council announces the awarding of a "certificate of merit" to Johnson Motors, 6000 Pershing Rd., Waukegan, Ill., for its research and engineering progress in the reduction of unnecesary outboard noise. The award was the first of its kind presented to any manufacturer by the organization which cooperates with the public, municipalities, industries and other civic groups in combatting the excessive noise problem.

Willis L. Manning, Libertyville, Ill., president of the Council, and Foye P. Hutchinson, Chicago, a member of the board of directors and of the Council Awards Committee, will present the certificate to Johnson Motors' officials.

The new 5½ hp motor, for which Johnson was cited, has recently been introduced to the public. Its quieting features are said to result from a new design principle involving a floating suspension mount that eliminates most of the boat vibration, therefore, most of the noise.

The company has published a booklet giving details about these quiet-running outboard motors. To get a copy, write the manufacturer asking for *Quiet Facts*, or use the Post Card on the colored page in this section. Circle No. 204.



getting the most for your money

in all departments

ANSONIA Ankoseal®

Wherever cable is used — you'll get more for your money with Ankoseal all-plastic, light weight cables.

The light weight and easy handling of Ankoseal results in lower installed costs.

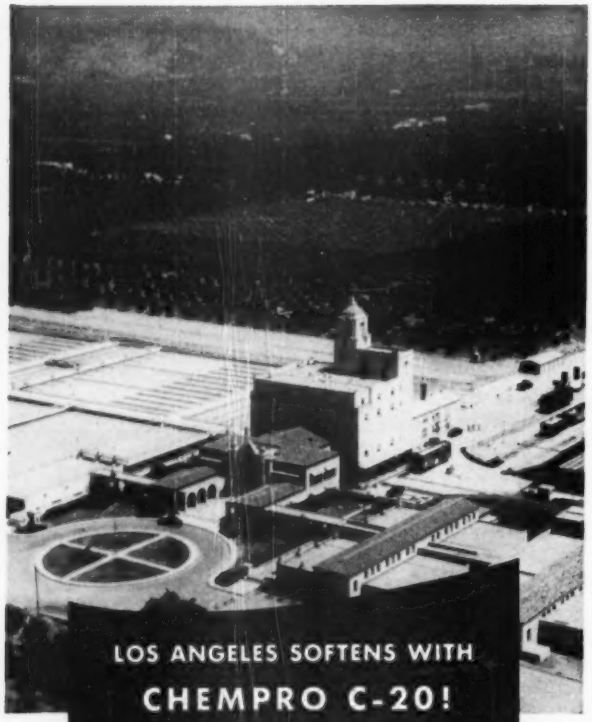
After Ankoseal is installed there are further savings from longer service life and reduced maintenance since Ankoseal's physical and chemical properties resist all the elements that attack ordinary cables.

To "get more from your money" discuss your future needs with an Ansonia sales engineer.

THE ANSONIA WIRE & CABLE COMPANY

Successor to The Ansonia Electrical Company

ANSONIA, CONNECTICUT



LOS ANGELES SOFTENS WITH CHEMPRO C-20!

Shown above is the new water softening and filtration plant of the metropolitan water district of Southern California.

The plant, designed to soften Colorado River water for the use of Los Angeles area residents, has a total planned capacity of 400,000,000 gallons of water per day.

Chempro C-20 polystyrene cation exchange resin is the major ion-exchange resin in the softening units.

Other resins developed especially for water treatment include Duolite A-7 (anion exchanger for demineralization) and Duolite A-41 (anion exchanger for silica removal).

WRITE TODAY . . for FREE booklet outlining facilities of Chemical Process Company and list of anion and cation exchange resins available for water treatment.

DUOLITE® ADSORBENT RESINS

CHEMICAL PROCESS COMPANY
REDWOOD CITY, CALIFORNIA

Power in a handy "package!"

Easy to move because it's balanced. Doors of this portable Electric Plant open for operation. Entire weatherproof housing is quickly removable for servicing. Gas tank is underneath for extra safety. Dependable "U. S." unit is D. C. for battery charging or operating portable tools. Available also in A. C. "U. S." builds the world's most complete line. Write for information, briefly stating your requirements.

UNITED STATES MOTORS CORP.
420 Nebraska St. **Oshkosh, Wisconsin**

Nite-Bright HIGHWAY SIGNS

"BRIGHT BY DAY — BRILLIANT BY NIGHT"

FOR THE BEST IN TRAFFIC SIGNS (heavy type)
ALUMINUM SIGNS REFLECTORIZED WITH SCOTCHLITE • EMBOSSED STEEL BAKED ENAMEL SIGNS
CHANNEL IRON SIGN POSTS IN STOCK
TRAFFIC CONES—IMMEDIATE SHIPMENT

See Our Listing in the 1953 Edition of The Municipal Index

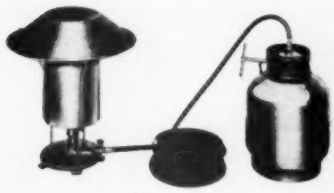
Write Us for Complete Information

NITE-BRIGHT SIGN COMPANY
140 JAMES STREET, BRIDGEPORT 4, CONN.

Maintenance Jobs Need Good Heating Equipment

Insto-Gas Corp. offers two gas-fired Salamanders for indoor and outdoor maintenance work. Both light instantly and avoid annoying smoke, soot, grease, and ashes.

The first, Model 1405, attaches directly to the top of an Insto-Gas Cylinder. Model 1410, a floor-type Salamander, is



connected by means of an Insto-Gas Hose and may be used to heat a wide area without moving the cylinder.

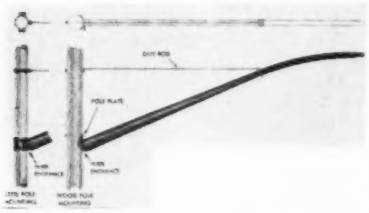
Models 1405 and 1410 are portable with flat tops. Adequate heat, up to 75,000 BTU each hour is provided.

For full data, write the Insto-Gas Corp., Detroit 7, Mich., or take advantage of the Post Card on the colored page in this section. Circle No. 192.

Street-Lighting Brackets and Mast Arms

While the primary function of the street-lighting bracket or mast arm is to position the lighting unit where it will render the most effective nighttime service, adequate strength and pleasing daytime appearance are important factors.

A handsome new 20-page brochure illustrates and describes in detail one dozen designs of steel mast arms for wood or steel pole mounting. Sizes include $1\frac{1}{4}$ and 2 inches by 4, 6, and 8 feet to 12, 15, and 20 feet. A new style



is shown here. It is an elliptical mast arm for accommodating $1\frac{1}{4}$-in. slip-fitter type luminaire.

The standard designs cataloged will meet practically every street-lighting bracket and mast-arm requirement. Write The Union Metal Mfg. Co., Canton 5, Ohio, or use the Post Card in this section. Circle No. 200.

To enforce this...

you need CYCLONE FENCE!

MORE and more city officials are discovering that good fencing is very important to efficient airport management. Passengers must be easily directed to the proper gates . . . valuable equipment protected from thieves and vandals . . . and visitors excluded from dangerous runways. That's why so many airports—both old and new—have extensive installations of Cyclone Fence.

Cyclone—long known as one of the country's outstanding property protection fences—is available in various heights and types to meet every possible airport, or other municipal, need. In lower heights, it is suitable for outlining paths, separating recreation areas, or establishing property boundaries. In taller heights, Cyclone Fence, especially when topped with three, five or six strands of barbed wire, presents a non-climbable barrier that would discourage the most determined intruder or thief.

Cyclone Fence deserves a place in the plans for your next municipal project. Get complete information on it from our engineers. They have had vast experience in specifying and installing Cyclone and will be able to tell you which type is best for your job. Get in touch with them today. And write Cyclone Fence, Department B-123, Waukegan, Illinois, for free literature on all types of fence and gates.

CYCLONE FENCE DEPARTMENT, AMERICAN STEEL & WIRE DIVISION
UNITED STATES STEEL CORPORATION
WAUKEGAN, ILLINOIS · SALES OFFICES COAST TO COAST
UNITED STATES STEEL EXPORT COMPANY, NEW YORK

USS

NO JOB IS TOO LARGE—NO JOB IS TOO SMALL FOR CYCLONE*

*Cyclone is the trade-mark name of fence made only by Cyclone. Accept no substitute.

U·S·S CYCLONE FENCE

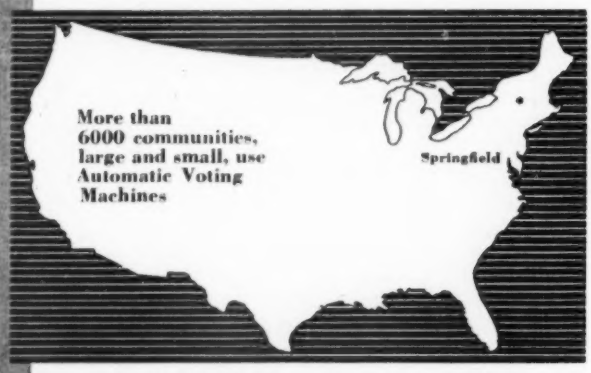
UNITED STATES STEEL

10th of a series

SPRINGFIELD, MASSACHUSETTS VOTERS

like their

AUTOMATIC VOTING MACHINES



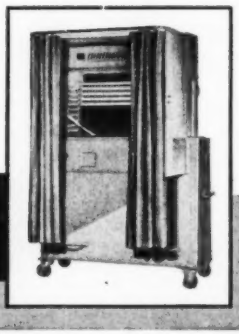
* Springfield, Massachusetts used 239 Automatic Voting Machines for the first time on October 6, 1953.

"The City of Springfield knew the identity of its November 3rd mayoralty candidates at 10:30 last night, because of voting machines used city-wide for the first time.

"The machines were overwhelmingly successful, meeting with unanimous approval.

"Voting machines have saved anywhere from 8 to 12 hours in computing totals."

—Front page
—Springfield Union
—October 7, 1953



AUTOMATIC VOTING MACHINE CORP.
JAMESTOWN, NEW YORK

ANTHRAFILT

(Reg. U. S. Pat. Off.)

A Filter Medium For All Purposes

Has outstanding advantages over sand and quartz media:

1. Length of filter runs doubled
2. Only about one-half as much wash water required
3. Less coating, caking or balling with mud, lime iron or manganese
4. Filters out of service less because of shorter wash cycle
5. Better removal of bacteria, micro-organic matter, taste and odor
6. Increased filter output with better quality effluent
7. Not just the top portion, but the entire bed, aids in filtering
8. Can be used in all types of filters using a filter medium
9. A perfect supporting medium for synthetic resins
10. An ideal filter medium for industrial acid and alkaline solutions
11. Decidedly advantageous for removal of fibrous material as found in swimming pool filters

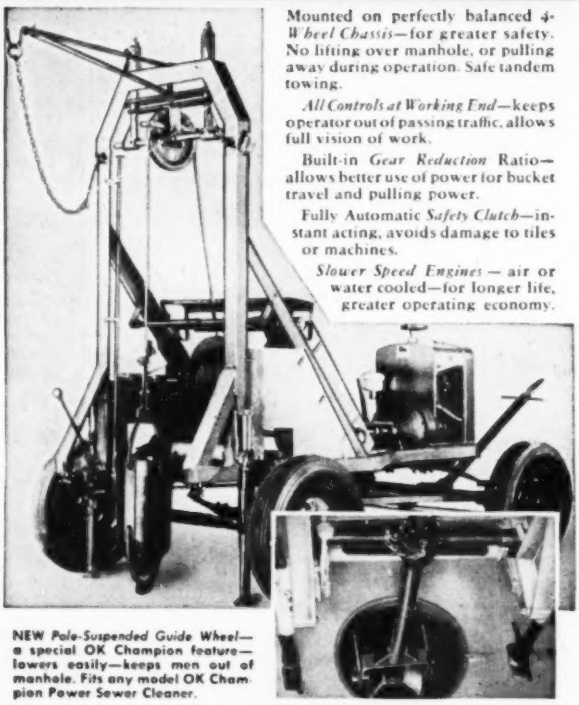
Additional information, recommendations and quotations furnished upon request by

PALMER FILTER EQUIPMENT COMPANY
822 E. 8th St. Erie, Pa.
Engineers and Sales Agents

REPRESENTING —

ANTHRACITE EQUIPMENT CORP.
Anthracite Institute Bldg., Wilkes-Barre, Pa.

OK CHAMPION POWER SEWER CLEANERS



Mounted on perfectly balanced 4-*Wheel Chassis*—for greater safety. No lifting over manhole, or pulling away during operation. Safe tandem towing.

All Controls at Working End—keeps operator out of passing traffic, allows full vision of work.

Built-in *Gear Reduction* Ratio—allows better use of power for bucket travel and pulling power.

Fully Automatic *Safety Clutch*—instant acting, avoids damage to tiles or machines.

Slower Speed Engines — air or water cooled—for longer life, greater operating economy.

NEW Pole-Suspended Guide Wheel—a special OK Champion feature—lowers easily—keeps men out of manhole. Fits any model OK Champion Power Sewer Cleaner.

Write for latest OK Champion Circular

CHAMPION CORPORATION 4716 Sheffield Ave. Hammond, Ind.

Hydraulic Controls for Trucks, Snow Plows, Etc.

Power hydraulic control equipment for city trucks of all makes is offered by the Monarch Road Machinery Co., 327-329 Front Ave., N. W., Grand Rapids, Mich. These controls are quick and simple to install with ordinary tools.

According to the manufacturer, Monarch controls are easily adapted for use on road machinery, snow plows, truck-and tractor-mounted accessories, materials-handling units, and machine tools. They are a valuable aid in lifting, pulling, pushing, and similar operations, reducing costs and man-hours to a minimum.

The new controls are available in the Hy-Lo-Jack or Hy-Lo-Jeep for fan-belt or direct-drive, and on specification, may be fitted with a manual clutch. The Dyna-Might Electric for 6- or 12-volt is also obtainable, as are package-type controls such as the TUH or HEP, or models such as the H, HL, HW, or HE. These permit various combinations of pumps, valves, reservoirs, etc., and lend themselves to practically any mounting requirement.

General information on the installation and performance of the various models of Monarch controls, are available from the manufacturer. Write directly, or take advantage of the Post Card located for your convenience on the colored page in this section. Circle No. 203.

TAPAX
The Original Manhole Cushion

Takes the BANG out of manhole covers

INSTALLING TAPAX—a matter of minutes

Brush Away Dirt & Gravel

Cut Required Length

Place Tapax sticky side down

Replace Cover

Write for Bulletin No. 10

JOSEPH G. POLLARD CO., Inc.
Pipe Line Equipment
NEW HYDE PARK, NEW YORK

Total Patching Cost
(Materials, labor, processing)
$3.75 per ton

with the H&B Moto-Patcher

● Here's an example of the way the Moto-Patcher cuts patching costs. According to Mr. Fred Tayntor, Commissioner of Public Works, Rome, N. Y., prior to May 15 their Moto-Patcher had mixed over 1500 tons of patch material (50% ¾" stone—50% ¼" stone) with RC No. 3 cutback as the bituminous material. The total cost, including materials, labor and processing, was $3.75 per ton.

This mobile mixing unit delivers up to 10 tons per hour of freshly mixed material. Automatic control of the metering of the asphalt and feeding of the aggregate insures a constantly uniform mix. The 400 gallon tank, which is an integral part of the unit, provides an adequate supply of bitumen—making frequent stops unnecessary. Aggregate may be either shoveled into the hopper or fed in by gravity directly from a truck by means of a small elevator (optional equipment) as shown above.

Other optional equipment includes a specially designed dryer and adjustable spreader attachment.

For further information send for Bulletin MPD-53

HETHERINGTON & BERNER INC. • *Engineers-Manufacturers*
737 Kentucky Avenue • Indianapolis 7, Ind.

Long-Awaited Unit Makes Beach Cleaning Easier

"What a mess," groans John Q. Public when asked to comment on the condition of the beaches and picnic areas in his community. This same feeling is expressed by the park official as he gazes out at miles of wire, broken glass, bottle caps, combs—even false teeth—left by pleasure-weary citizens. To him, after all, falls the task of cleaning up.

Cleaning beaches, however, is no longer the slow, cumbersome operation it was in the past. Especially since the introduction of a new machine, the Beachcomber, by the Barber-Greene Co. of Aurora, Ill. This machine will excavate and screen from 100- to 130-cu. yds. of sand an hour. It works back and forth along the long axis of the beach, covering every square foot of ground.

The Beachcomber, mounted on a crawler and powered by a gasoline engine, is 23 feet long and 15 feet high. At the front, steel spirals, followed by an adjustable scraper blade dig in to a depth of from 4- to 10 inches, and excavate a path 8 feet wide. The excavated sand is elevated by a chain of

steel buckets and is discharged onto a ½-in. mesh screen which is mechanically vibrated at 1,200 rpm. The sand passes through the screen and falls back into the excavated path of the machine. Foreign objects slide off the screen into a shallow hopper which can be detached for dumping.

Park officials can get additional information on the Beachcomber by addressing the manufacturer directly, or use the Post Card on the colored page in this section. Circle No. 177.

Traffic Authorities and City Officials

The **Portable Traffic Signal that meets YOUR Standards**

SPECIFICATIONS

Height—9' 2" overall.
Two 8" wheels with rubber cushion tires.
Completely automatic; also manual control.
Self-contained battery charger, 110-volt.
Heavy-duty 6-volt battery, which will operate signal 18 hours continuously.

Easy on the traffic officer.
Easily handled by one man.
Easily wheeled off the street when not in use.
Easily transported to distant emergency spots by trailer.

Of course it's a portable signal.
In every essential respect it is a regulation-size traffic signal.

"TRAFFIC SENTRY", the portable traffic signal built by Portable Traffic Signals, Inc. was designed, constructed, and is sold to meet the standards set forth in the Manual on Uniform Traffic Control Devices for Streets and Highways.

Write for all the facts:

PORTABLE TRAFFIC SIGNALS, INC.
Manufacturers of the "Traffic Sentry"
1620 South Hill St. Los Angeles 15, Calif.

Effective Deodorizing

City officials who've worked with deodorants, either on refuse and garbage collection trucks or in hospitals and other public institutions, are familiar with the two ordinary types; the deodorant that masks with a more powerful odor, and the "anesthetic" that deadens the olfactory organs.

Odor Fix Concentrate, newly introduced by the Thompson Chemicals Corp., is said to eliminate both these evils. Containing odorless deonium, it works like a blotter, absorbing unpleasant smells from the air.

According to Dr. Tellef Senum, Thompson research director, Odor Fix may be sprayed in the air or directly onto the odor source. It will kill chemical, smoke, fire, public washroom, and other odors economically, without staining.

For full information on this new chemical deodorant, and a free sample of the concentrate, write Thompson Chemicals Corp., 3026 Locust St., St. Louis 3, Mo., or use the Post Card in this section. Circle No. 202.

Forms for Concrete Street Markers

Sargent & Sowell, Inc., 1211 E. Jefferson St., Grand Prairie, Texas, offers forms and stencil sets for the construction of white, reinforced concrete street markers. These markers are easier to read, cheaper, longer lasting, and less subject to destruction by vandals.

Each marker is 6½ feet long and 5 inches square, with letters 2 or 3 inches high set ¼-in. into the concrete. The forms for the construction of these markers can be used year after year. The manufacturer suggests using winter-time labor during rainy or cold days for the casting of the markers.

Stencil sets and reverse letter and numerals are available for those cities with their own forms.

For further information, write directly to the company, or use the Post Card in this section. Circle No. 198.

Westport, Massachusetts' new 1,000-gpm pumping engine is equipped with a 1,000-gallon tank, 255-hp engine, and 2-speed axle for heavy duty. It's built by the Maxim Motor Co., Middleboro, Mass.

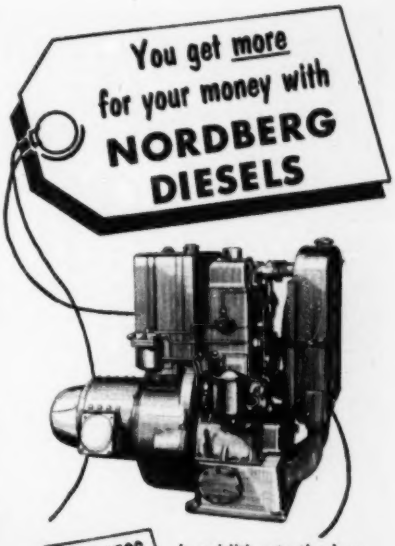
. . . with this

F & E INCINERATOR STOKER

It has been demonstrated under rigid test conditions that increases in incinerator plant capacities up to 50% are obtainable along with 50% lower labor cost per ton burned. Information concerning these tests, descriptive literature, and technical information are available. Write today . . .

F&E **FLYNN & EMRICH CO.**

301 N. Holliday St. ★ Baltimore 2, Maryland



COST LESS TO OPERATE — In addition to the low initial cost of the 1, 2 and 3-cylinder Nordberg "4FS" series Diesel engines, the outstanding design and construction of these compact units assures extremely low fuel and lube oil consumption . . . which has been proved in a wide range of power jobs.

MORE 'EXTRAS' — Here are the "extras" that are all *included* in the low initial cost of Nordberg Diesel units: thermostatically controlled cooling system — heavy duty oil bath air cleaner — lube oil cooler — fuel and lube oil filters. *Compare* before you buy *any* 10 to 45 hp engine.

LONGER LIFE — Like all Nordberg Diesels, the "4FS" series engines are sturdily built to give years of reliable service with a minimum of maintenance time and expense.

Clip the coupon for details on Nordberg Diesel power units from 10 to 45 hp—Diesel generator units from 6 to 30 kw—or for Diesel pumping units in capacities from 200 to 3000 gpm at 15 to 240 ft. total head.

NORDBERG MFG. CO., Milwaukee, Wis.

NORDBERG

BUILDERS OF AMERICA'S LARGEST LINE OF HEAVY DUTY DIESELS

MAIL THIS COUPON TODAY

Nordberg Mfg. Co., Milwaukee, Wis.
Send catalog covering Nordberg Type 4FS Diesels. I am interested in a unit for the following service: AC

.....

Your Name .....

Company Name .....

Address .....

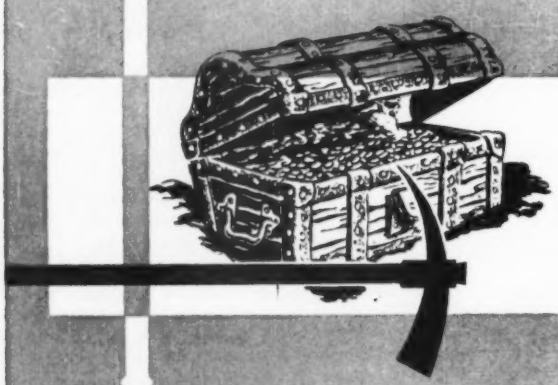
City ..... Zone .... State ....

4-553

YOUR CORPORATION AND CURB STOPS ARE "Buried Treasure"

that is...

if they're WELSBACH-*Kitson*



No. 1100

No. 1200

Not pirate gold or pieces of eight... but that "buried treasure" is the *extra* quality built right into Welsbach-*Kitson* corporation and curb stops. The quality and dependability of Welsbach-*Kitson* products means that you'll have fewer replacement problems... and no costly excavating. They're built to give lasting service and satisfaction. When you install Welsbach-*Kitson* products underground, you'll find that they are really "buried treasure"—but the kind of "buried treasure" you won't want to—or have to—dig up!

for underground installations insist on highest quality... insist on **WELSBACH-*Kitson*!**

THE WELSBACH CORPORATION
KITSON VALVE DIVISION
1500 Walnut Street, Philadelphia 2, Pa.

FILTER SAND AND GRAVEL

Produced from an inland pit hence free from river contamination and foreign matter.

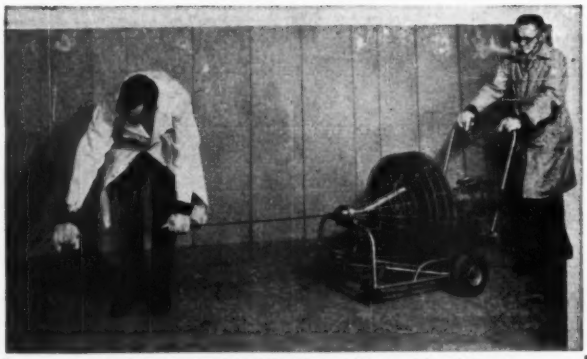
Shipment in bulk or bagged.

Many of the larger filter plants throughout the United States are equipped with our products.

PROMPT SHIPMENT

Inquiries and orders solicited.

NORTHERN GRAVEL COMPANY
Muscatine, Iowa
P. O. Box No. 307 Phone: 4261



New O'Brien SEWERKING, equipped with solid rods.

TWO MACHINES IN ONE!

Now—save money on sewer-cleaning equipment!

Here's the new O'Brien SEWERKING that can be used with flexible steel cable or solid rods! With this new machine, you can handle more sewer jobs—without paying for expensive, big machines. O'Brien SEWERKING is easy to operate; has a powerful, reversible electric motor (or can be used with gasoline engine) that turns cutting knives and cable to quickly clear line of roots, mud, etc. Cleans lines up to 14" in diameter, 500 feet long. Safe operation—no hand feeding of cable necessary.

WRITE TODAY FOR FREE BOOKLET

O'BRIEN Manufacturing Company
Dept. AC-12
5663 Northwest Highway
Chicago 30, Illinois

Packaged Fire Protection

This company doesn't underestimate the value of sprinklers and water standpipes, both of which offer effective fire protection for public buildings. It does, however, recognize the importance of protecting "what's inside the building," including materials in storage, equipment, and processes.

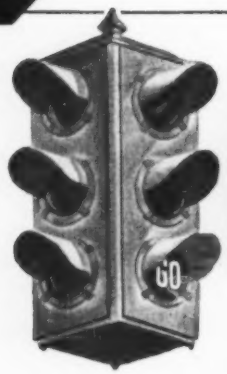
The Kidde Packaged Automatic Carbon Dioxide Extinguishing System operates before a fire has reached proportions calling for the use of sprinklers or hose lines. It is set off by a sudden rise in room temperature. Gradual temperature increases, according to the manufacturer, are vented off to prevent premature operation.

The system works in enclosed spaces up to 6,000 cubic feet in size (larger rooms may be handled by larger systems), discharging enough carbon dioxide gas to put out a fire. Heavier than air, the gas displaces the oxygen and strangles the blaze. It evaporates quickly, and has no adverse effect on materials or machinery.

The carbon dioxide is stored as a liquid in steel cylinders. These are connected by pipes to Kidde Multijet Nozzles, placed at strategic points inside the space to be protected. One two or three heat detectors are located on the ceiling of the room and connected to the automatic discharge head by heavy copper tubing. No outside power source is necessary to operate the Kidde Packaged Automatic Carbon Dioxide Extinguishing System.

How to provide community property with low-cost fire protection is explained in fully detailed literature now available from Walter Kidde & Co., Inc., Belleville 9, N. J. Write directly to the manufacturer, or you may take advantage of the Post Card located for your convenience on the colored page in this section. Circle No. 208.

STOP WASTING MONEY BY THE TRUCKLOAD



Go White!

YOU NEED the most efficient, most dependable kind of trucks for today's schedules . . . today's costs of doing business . . . today's work conditions.

That's why you see so many Whites in excavating, road-repair and maintenance service and dump operations.

Tailored to the exact needs of your work, Whites have the power and the rugged reliability to get *more* work done . . . in *less* time . . . at *lower* cost than any other truck you can buy.

Find out how Whites save money in *your* service. See your White Representative.

This WHITE Model 302264 is in road repair and maintenance service for Maricopa County, Arizona.

THE WHITE MOTOR COMPANY • *Cleveland 1, Ohio*

For more than 50 years the greatest name in trucks

Check these White advantages . . .

- √ WIDE RANGE of models to meet every hauling operation.
- √ OUTSTANDING maneuverability because of short wheelbase, wide tread front axle and short turning radius.
- √ NEW WEIGHT distribution permits larger loads within legal limits . . . extra payload . . . more work done.
- √ SINGLE drive axle units with single or double reduction or two-speed axles.
- √ TANDEM drive units with double reduction axles.
- √ SINGLE or double channel frame.
- √ TRANSMISSIONS—various transmissions and auxiliary transmissions to meet local operating conditions.

Something New in Fire Pumpers

Fire engines, similar to the one pictured here, were built by the Oren Roanoke Corp., Roanoke 16, Va., and delivered to Nashville, Tenn., to meet that city's civil defense requirements. A Model 1600 Pumper, the unit features a 1,000-gallon multi-stage pump with recessed operating panels, and an all-steel closed cab large enough to fit four men.

The deluge nozzle is mounted on a full-swivel deck, permitting the intakes to take water from either side, as well as from the rear of the apparatus. A touch of the finger moves the deck, which once set remains firmly in position.

Full information on Oren custom-built fire engines is available directly from the manufacturer, or you may use the Post Card located for your convenience on the colored page in this section. Circle No. 182.

for **CAST IRON PIPE**

CALL OR WRITE

McWANE Cast Iron Pipe Company, Birmingham, Ala.

Pipe sizes 2" thru 12"

Sales Offices

Birmingham 2, Ala., P. O. Box 2601. Phone: 4-3521.
Chicago 1, Ill., 333 North Michigan Avenue. Phone CE. 6-9752.
New York 4, N. Y., 80 Broad Street. Phone: Bowling Green 9-7735.
Kansas City 6, Mo., 1006 Grand Avenue. Phone Harrison 2492.
Dallas, Texas, 3200 Maple Avenue. Phone: Riverside 5683.

PACIFIC STATES Cast Iron Pipe Co., Provo, Utah

Pipe sizes 2" thru 24"

Sales Offices

Provo, Utah, P. O. Box 18. Phone: 3200.
Denver 2, Colo., 1921 Blake Street. Phone: Main 0697.
Los Angeles 48, Calif., 6399 Wilshire Blvd. Phone: Webster 3-9108.
San Francisco 4, Calif., 235 Montgomery Street. Phone: Yukon 6-1421.
Portland 4, Oregon, 501 Portland Trust Bldg. Phone: Atwater 2815.
Salt Lake City, Waterworks Equipment Co. Phone: 4-1971.
Seattle, Wash., Smith Tower Bldg. Phone: Seneca 2680.

SEWAGE SLUDGE GAS SAFETY EQUIPMENT

. . . for SAFE, SURE gas utilization

Completely eliminate fire and explosion hazards! P.F.T. gas safety equipment includes: waste gas burners, flame traps, pressure relief units, gas pressure regulators, pressure gauges, condensate and sediment accumulators. Write for Bulletin 221 for complete details!

P.F.T. **PACIFIC FLUSH TANK CO.**

Waste Treatment Equipment Exclusively Since 1893

4241 RAVENSWOOD AVE. CHICAGO 13, ILLINOIS

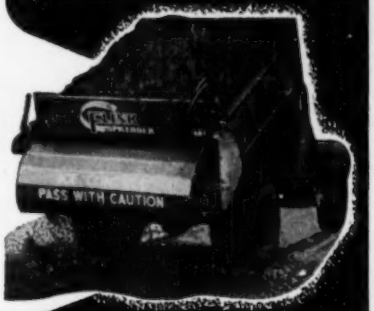
NEW YORK • LOS ANGELES • SAN FRANCISCO • CHARLOTTE, N. C. • JACKSONVILLE • DENVER

SPREADERS
Tail Gate Type

SPREADERS
Hopper Type

SPREADERS
Pull Type

• Hydraulic Drive
• Chain Drive
• Power Take Off Drive



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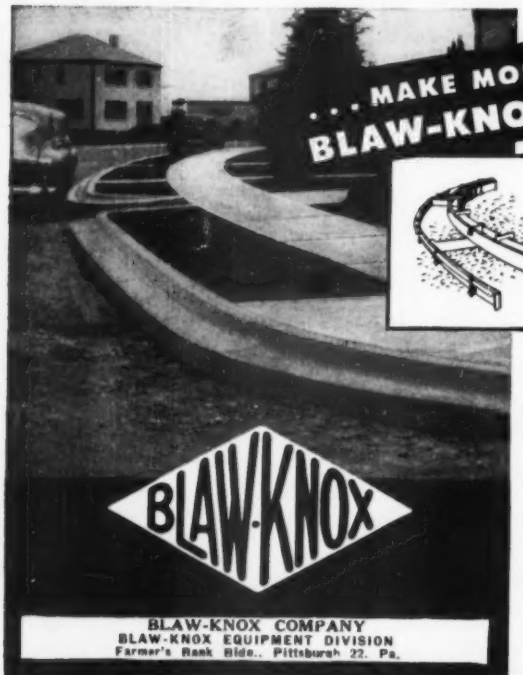
SPREADERS

the most complete line of SPREADERS for ICE CONTROL and ROAD BUILDING

for CHIPPING
SEAL-COATING
SAND • CINDERS • SALT
PEA GRAVEL *and*
AGGREGATES

Write today
for news of the
NEWEST IN SPREADERS
and the name of the
FLINK DISTRIBUTOR
nearest you

THE Flink CO. SINCE 1929
DEPT. 4
STREATOR, ILLINOIS



. . . MAKE MORE PROFIT ON JOBS LIKE THIS WITH
BLAW-KNOX CURB AND GUTTER FORMS

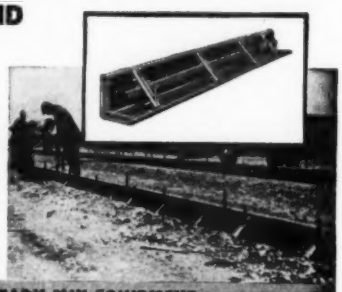
WHATEVER kind of street paving work you have, from curved or serpentine shapes to simple straight work, Blaw-Knox Steel Curb and Gutter Forms make money on every job. Easy to set and strip, they complete the job faster and well within your estimate. Costly hand finishing is eliminated. You not only save on materials and carpentry labor, but finished jobs have a perfection impossible to achieve with wood forms. The same forms can be used over and over for a wide variety of work. Ask your Blaw-Knox distributor about the "Complete Package" of Steel Forms for low-cost construction of concrete curb, curb and gutter, integral curb and sidewalk.

BLAW-KNOX

BLAW-KNOX COMPANY
BLAW-KNOX EQUIPMENT DIVISION
Farmers Bank Bldg., Pittsburgh 22, Pa.

BLAW-KNOX ROAD AND AIRPORT FORMS

You can be sure of more rapid form setting, *always true to line and grade*, with Blaw-Knox Heavy-Duty, Self-Aligning Steel Forms. Available in heights of 8" or more, or in Dreadnaught Forms when less than 8" height is required. Heavy-Duty 12" x12" Forms and Airport Paving Forms in sizes above 12" are designed especially to meet the thicker paving slab requirements of modern airports.



ASK ABOUT THE BLAW-KNOX "Complete Package" OF CONCRETE PAVING AND READY-MIX EQUIPMENT

LETTER YOUR ROLLING EQUIPMENT with our New Improved TRUCKSIGN TRANSFERS

- GREATER ECONOMY
- DURABILITY
- SIMPLE APPLICATION
- BRILLIANCE OF COLORS
- NO TYING UP OF EQUIPMENT
- EXTRA LONG STORAGE

SEND US YOUR PROBLEM – OUR TECHNICAL ADVICE IS *FREE*

Ward's TRUCKSIGN TRANSFERS
8504 LYNDON AVE.
DETROIT 38, MICHIGAN
A DIVISION OF WARD'S NAME PLATES

MAXIM

time-proven

THE SNOW THROWER

YOU CAN USE EVERY MONTH OF THE YEAR!

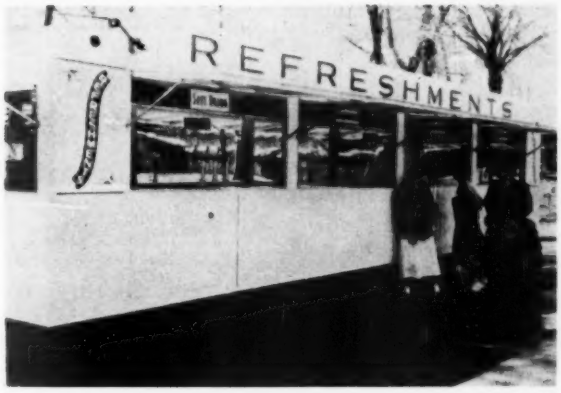
8 HP

WRITE FOR DETAILS

THE MAXIM SILENCER COMPANY
84 HOMESTEAD AVENUE, HARTFORD 1, CONNECTICUT

Purchasing News

Parks Use Mobile Refreshment Stands



A skirt has been added to the bottom of this mobile refreshment stand to give it a trim stationary appearance.

Exactly where in a public park area should park supervisors build refreshment facilities? If these facilities are widely scattered, it means a long walk "for a bottle of pop." Building too many refreshment facilities, on the other hand, is unjustified because of the many months of the year when most parks are virtually empty.

A good way to solve the park official's dilemma, is to replace the fixed refreshment building with mobile units that can be moved quickly from place to place or, at season's end, used in a different location.

According to the Calumet Coach Co., 11575 S. Wabash Ave., Chicago 28, Ill., the cost of a mobile trailer unit that can be used in municipal parks runs from $2,500 to $4,000, depending on size and equipment. The trailer, however, soon pays for itself. Working at a bathing beach in one of the larger cities, reports the manufacturer, a small mobile refreshment stand averaged better than $900 per day.

CalCoach mobile units are now in operation at the Cincinnati Zoological Gardens, and in other parks throughout the country. For a descriptive catalog, write the company direct, or take advantage of the Post Card on the colored page in this section. Circle No. 176.

APSCO Products May Go to Blaw-Knox

A preliminary agreement concerning the acquisition of all outstanding stock of the All Purpose Spreader Co., Elyria, Ohio, by the Blaw-Knox Co., has been announced by W. Cordes Snyder, Jr., president of the latter firm. The arrangement, if completed, will place the company and APSCO road paving equipment under Blaw-Knox direction.

Blaw-Knox manufactures a broad line of construction equipment in the road-paving field. The company is located at 2009 Farmers Bank Bldg., Pittsburg 22, Pa.

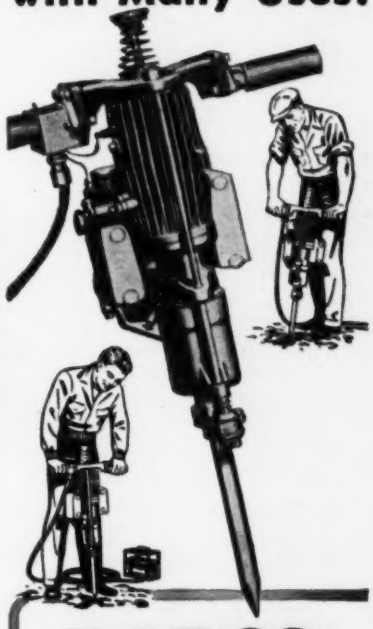
Fines Paid on the Spot

The Brookhaven way with our
Business-Reply-Coin-Envelope-Parking Ticket
Minimum loss of money, time and temper

Write now for samples and startlingly low prices
and all about the Brookhaven method
that tripled fines paid in one year

ROD W. DAVIS Brookhaven Mississippi

A Profitable Tool with Many Uses!



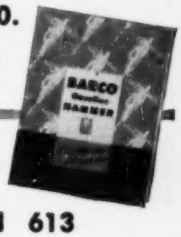
BARCO *Gasoline* HAMMER

■ **HERE'S why owners of the *improved* Barco Gasoline Hammer are enthusiastically acclaiming it as *"A Profitable Tool With Many Uses!"***

- **Versatile! Use it for Pavement Breaking . . . Cutting . . . Digging . . . Rock Drilling . . . Frost Breaking . . . Rod Driving. Ideal for general utility, standby, and emergency service.**
- **One man operation. No compressor needed. Easy to take to any location.**
- **New ignition system—quick, easy starting.**
- **Quick disconnect at handle for battery cable. Thumb controlled switch.**
- **Powerful, rugged; up to 1550 strokes per minute.**
- **Economical! Low first cost, low operating expense, low maintenance expense. *Quickly pays for itself.***

ASK FOR A DEMONSTRATION—See for yourself—ask for our nearest distributor to give you a demonstration.

BARCO MFG. CO.
535N Hough St.
Barrington, Illinois
A Chicago Suburb



Ask For This New
BULLETIN 613

6 Essential Facts

for a city with a Water Problem
... and a Budget Problem, too!

1. Costs Far Less to Install!
A Ranney Water Collector will add millions of gallons to your daily water supply—at a fraction of the cost of conventional systems!

2. Less Expensive to Operate!
A Ranney Water Collector is far less expensive to operate—uses fewer pumps, fewer personnel, less power, and usually requires no treatment facilities.

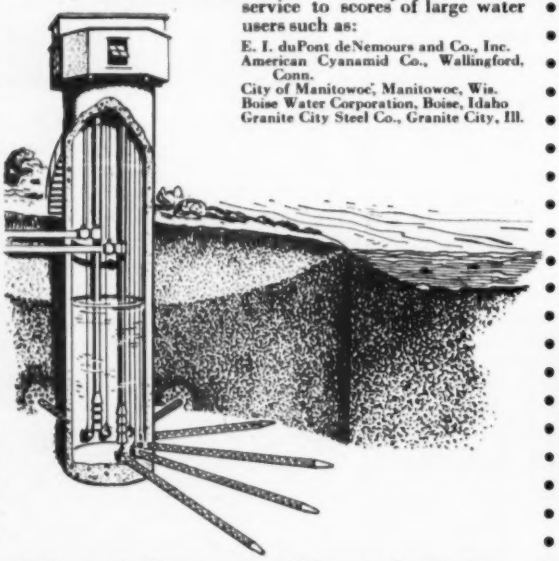
3. Maintenance Requirements Practically Nil!
A Ranney Water Collector requires little or no maintenance. The rate of flow through the Ranney Collector's apertures eliminates clogging and silting. No filter plant maintenance.

4. More Water per Unit!
A single Ranney Water Collector has produced more clear, cool water than ten conventional vertical wells.

5. Far Longer Life Cuts Depreciation Costs!
The longer life of a Ranney Water Collector lowers financing and depreciation rates appreciably.

6. Ask These Satisfied Users
Ranney Water Collectors are currently rendering excellent service to scores of large water users such as:

E. I. duPont deNemours and Co., Inc. American Cyanamid Co., Wallingford, Conn.
City of Manitowoc, Manitowoc, Wis.
Boise Water Corporation, Boise, Idaho
Granite City Steel Co., Granite City, Ill.



An inexpensive Ranney survey will determine how the Ranney Method can work for you.

If you need water, write us for complete information on how a Ranney Water Collector will solve your problem.

Ranney Method Water Supplies, Inc.

HYDROLOGISTS AND WATER SUPPLY CONTRACTORS

Executive and Engineering Offices
Dept. A-12 P.O. Box 277, Columbus 9, Ohio

PORCELAIN ENAMEL
HOUSE NUMBERS

4
6
5

and Aluminum Number Holders

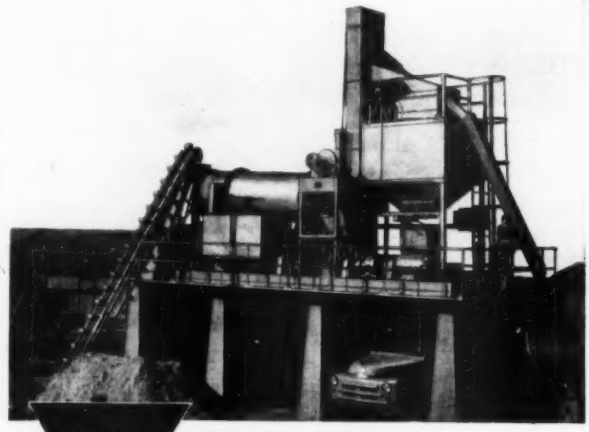
These 2" x 3" house numbers have the figures in black against a white background. Can be used with or without holders as each number has holes for mounting.

Holders which are available for two or more numbers are made from aluminum.

Numbers are quickly inserted into the holder and a tab which is easily turned up holds the numbers securely in position.

Write for quantity prices.

STANDARD SIGNS, INC.
3199 EAST 65th ST., CLEVELAND 27, OHIO



WHITE **ASPHALT PLANTS FOR HOT-MIX PAVING**

These reasonably-priced stationary hot plants are complete on one steel frame, for easy moving to a new location. Excellent for medium-size city paving jobs; for street and highway maintenance, and for paving driveways, alleys, sidewalks or industrial plant areas.

Oil-fired rotary dryer, batch mixer, vibrating screen, divided hot bin, dust collector, volumetric or weigh scales, engine or electric power, air controls.

Model L-12, 12-15 tons per hour; Model L-25, 25-30 tons per hour. Portable units also available

For FREE circular, write—

ELKHART 1 White Mfg. Co. INDIANA

Oceans of Problems?

If you need information on any type of municipal service or equipment, the reply card below will get action in a hurry.

Postage Will be Paid by Addressee

No Postage Stamp Necessary If Mailed in the United States

See reverse side

BUSINESS REPLY CARD

FIRST CLASS PERMIT No. [illegible], SEC. 34.9 P. L. & R., NEW YORK, N. Y.

THE AMERICAN CITY MAGAZINE
470 FOURTH AVENUE
NEW YORK 16, N. Y.

Busy as a Beaver?

Make use of this convenient Business Reply Card. A quick, easy way to get full details on products and services mentioned or advertised in this issue.

To THE AMERICAN CITY's Catalog Supply Department,

Please send literature on items numbered as follows, starting on page 85,

.....

.....

Please send me further information on products described in the "Municipal Purchasing News" section beginning on page 181, as circled below:

176	181	186	191	196	201	206	211	216	221
177	182	187	192	197	202	207	212	217	222
178	183	188	193	198	203	208	213	218	223
179	184	189	194	199	204	209	214	219	224
180	185	190	195	200	205	210	215	220	225

I would like to receive also manufacturers' booklets on.....

.....

.....

NAME.....

TITLE.....

ADDRESS.....

..... 12-53

Hot or Cold Patch Mix for Street Repairs

Effective street repairs needn't be a seasonal phenomena, reports one company. A good asphalt mixer will work in any weather producing an adequate hot or cold patch mix.

The HTD Multi-Pug Asphalt Mixer handles on-the-job mixtures of asphaltic concrete, sheet-, sand-, or mastic asphalt. It reactivates and heats stock pile mixtures up to 15 tons per hour; prepares cold asphaltic mixtures to 30 tons, and hot mixtures up to 10 tons per hour.

The new model does a quick, thorough drying job on various types of wet aggregates. It removes moisture

The HTD Multi-Pug Asphalt Mixer.

and solvents from bituminous mixtures, and processes tars, paving- and cutback asphalts, and emulsified asphalt.

K. E. McConnaughay, Lafayette, Ind., will furnish complete information. Write directly, or use the Post Card in this section. Circle No. 206.

Hauls More Refuse

The Packa-Van unloads in 30 seconds.

The plain van-type body pictured here, doesn't even look like a garbage collection unit. It keeps refuse hidden from sight and can be thoroughly cleaned with little effort. It hauls more garbage per load and costs less to maintain.

Lighter than most collection bodies of comparable size, the Packa-Van can be mounted on a small or regular chassis in several hours. It hauls more garbage because it compresses the entire area from side to side and roof to floor under a 35,000-pound force. This crushes wooden boxes, barrels, cans, etc., and packs soft garbage into a practically solid mass.

The Brown Truck & Trailer Mfg. Co., has included a ram the full size of the body interior, with less than 1% clearance. The face of this ram forces the garbage to the top, filling the body from floor to roof, front to back.

The Packa-Van unloads in some 30 seconds. The safety catch is released and the content pushed out by the ram.

A full description of the Packa-Van is obtainable on request from Brown Truck & Trailer Mfg. Co., Inc., P. O. Box 1281, Charlotte, N. C., or use the Post Card on the colored page in this section. Circle No. 205.

DANGER

In Neglected Sewers

Thomas Drain Service

Home Office - 35 S. College St., Akron 8, Ohio
Collect Phone Calls Accepted
Call BLackstone 2212 Akron, Ohio

• We will supply enough equipment to clean your sewers, and a man to supervise the operation, on a rental basis.

• No equipment to buy and maintain — rental actually costs less than equipment maintenance.

• Safe domestic defense requires clean, well operating sewers.

ELIMINATE PIGEONS

Sparrows and Starlings

Yes, Bur-Co Bird Repellent will pay for itself many times in labor saving and elimination of building repairs. It does not harm the birds, they instinctively dislike a sticky substance. There is no chemical reaction on any building material. It will not harm humans internally or externally. Each application applied properly will eliminate birds for at least one year.

BURR CHEMICAL CO. 3329 Auburn Street Rockford, Illinois

FLAMEFOIL* CANVAS

*Manufactured under Patents Nos. 2,299,612 and 2,644,176 . . . . . others pending.

TENTS, TARPS, PROTECTIVE COVERS

WINDBREAKS *can't Blaze*

Ask your canvas goods dealer about FLAMEFOIL or write us direct for the brochure "Flame Resistant Fabrics." Learn their properties and latest specifications.

FLAMEFOIL GUARDSMEN

PHILADELPHIA TEXTILE FINISHERS, Inc.
105 Lafayette St. Norristown, Penna.

PROCESSORS OF FLAME-RESISTANT FABRICS

CONSTRUCTION CASTINGS

for **Highway • Municipal • Building**
Industrial • Communication
Public Works • Airport
Utilities • Transportation

Patterns for 15,000 different Gray Iron Castings used on Construction Projects.

Write for our 135-page
Catalog "R," Second Edition

NEENAH FOUNDRY CO.
NEENAH, WISCONSIN

Chicago Office 308 W. Washington St., Chicago, Ill.

Grotelite
SMOOTH S S SURFACE
REFLECTIVE SHEETING

This highly reflective, smooth surface flexible sheeting makes a smashing, attention-compelling sign with greater day and night value. The smooth, self-cleaning surface can be screened, sprayed or brushed. It is easy to apply and makes the best long life signs and marking devices.

GREATER SAFETY
LONGER RANGE
DURABILITY
ECONOMY

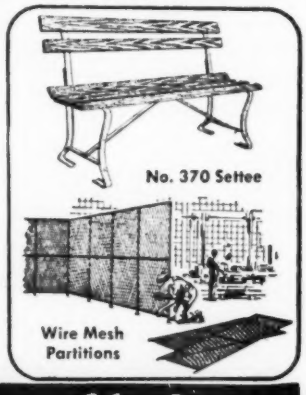
Write for complete description, samples and prices.

THE Grote MFG. CO.
BELLEVUE, KY.
(Opposite Cincinnati)

Public Property *PROTECTION* is our business

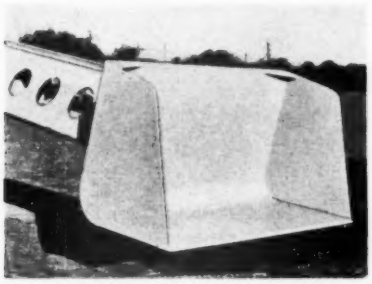
For your protection Stewart produces chain link wire and iron picket fence; wire mesh partitions; wire window guards; steel folding gates. Also flagpoles; settees; bronze plaques and other metal specialties. Write for catalogs. Please mention products in which you are especially interested.

THE STEWART IRON WORKS CO., INC.
2021 Stewart Block, Cincinnati 1, Ohio
Experts in Metal Fabrications since 1886



Stewart IRON and WIRE FENCES

Snow Bucket Works on Crowded Streets



New bucket has straight sides to facilitate snow disposal.

For effective snow removal in metropolitan areas, The Warner & Swasey Co. has devised a new bucket accessory for the Gradall machine. It attaches to the end of the Gradall's 24-ft. telescoping boom, and works between parked cars and in tight quarters impossible to reach with conventional snow removal equipment.

The snow bucket is 60 inches wide, 32¼ inches deep, and weighs 585 pounds. In spring, summer and autumn it may be used on a variety of street construction and maintenance jobs.

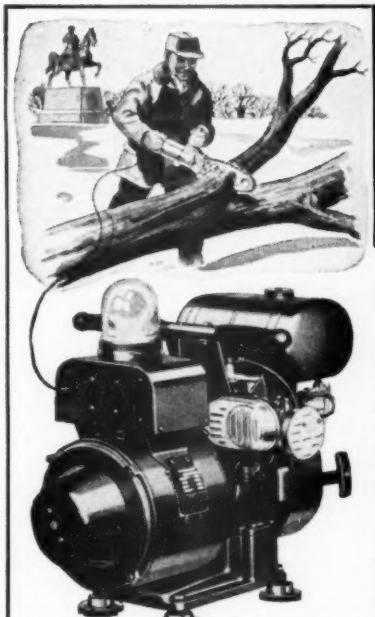
Details on the Gradall and the new snow removal bucket are obtainable on request from The Warner & Swasey Co., Cleveland 3, Ohio, or you may use the Post Card on the colored page in this section. Circle No. 201.

Spreads Asphalt Quickly

Simplify street construction and repairs with a new truck-pulled asphalt spreader introduced recently by the I. J. Overman Mfg. Co., 3301 Torrance St., Marion, Ind. This dual-vibrator spreader will lay a smooth, compact asphalt street quickly and economically.

The Overman Spreader may be moved from place to place at a speed of 40 miles per hour. Improved pit arms make the unit easy to steer in traffic.

For full information, address the manufacturer direct, or you may use the Post Card on the colored page in this section. Circle No. 209.



MODEL 1.5MS, *1500 watts, 115 volt DC. Manual control. Also 115 volt AC weighing 130 pounds.*

KOHLER
ELECTRIC PLANTS
Independent Source of Electricity

Electricity on the job!

Portable, low-cost model makes available the right kind of electricity at the spot where the work is done. Operates chain saws, carpenters' saws, pipe threaders and cutters, hedge trimmers, grass shears, pruners, drills, other tools having universal (AC-DC) motors. Weighs only 101 lbs., handles for carrying.

Other sizes from 500 watts to 30 KW for trucks, street repairs, police and fire departments, electro magnets. Stand-by models for protection of hospitals, sewage disposal plants, communication systems, public buildings when central station power is cut off. Write for folder 21-L.

Kohler Co., Kohler, Wisconsin. Established 1873

KOHLER OF KOHLER

PLUMBING FIXTURES • HEATING EQUIPMENT • ELECTRIC PLANTS
AIR-COOLED ENGINES • PRECISION CONTROLS

SAVE

Maintenance AND Towel Costs WITH

Sani-Dri
ELECTRIC
HAND OR HAIR DRYERS
SAVES MAINTENANCE EXPENSES!
New No. 8 wall model with patented, faster-drying features!
ELIMINATES TOWEL EXPENSE . . . SAVES STORAGE SPACE
ELIMINATES TOWEL LITTER

Save valuable maintenance time and eliminate continuing towel expense. New high-speed Sani-Dri provides quick, automatic hand or hair drying service 24 hours a day year after year! Sani-Dri is a permanent solution to your washroom sanitation and drying problem . . . and SAVES UP TO 85% OF YOUR WASHROOM COSTS!

NEW FASTER-DRYING FEATURES!

- *New faster-drying heating element!*
- *New smaller, oval nozzle produces more concentrated stream of air!*
- *Instant starting push-button switch with automatic shut off!*

All Sani-Dri Electric Dryers are GUARANTEED, and have carried the Underwriter's Seal of Approval for over 18 years!

New Brochure!

Shows all Sani-Dri hand and hair dryer models with new high-speed drying features . . . plus installation pictures. Write today!

Distributors in principal cities

The Chicago Hardware Foundry Co.

"Dependable since 1897"

51123 Commonwealth Ave., North Chicago, Ill.

Redesigns Hopto Digger

Cables, sheaves, chains and sprockets; they've all been replaced by hydraulic controls in the Badger Machine Company's redesigned Model 120TM-53 truck-mounted Hopto. According to the manufacturer, even the gear of the unit's "rack and gear mechanism" is actuated by double-acting hydraulic cylinders.

Badger has reconstructed the main frame of the Hopto to protect the operator in poor weather. The company has also provided relief valves to cushion stops and starts on the 200° arc of the boom swing.

Model 120TM-53 can be powered by water or air-cooled power units, or driven by the power take-off of the truck. It has a digging depth of 11 feet, and a choice of bucket and back hoe widths from 8- to 38 inches.

For detailed information, write the Badger Machine Co., Winona, Minn., or take advantage of the Post Card on the colored page in this section. Circle No. 188.

The Hopto's internal parts and hydraulic cylinders are interchangeable.

The Original
INTERSTATE RUBBER PRODUCTS
TRAFFICONE SYSTEM OF TRAFFIC CONTROL

Safety
TRAFFICONE

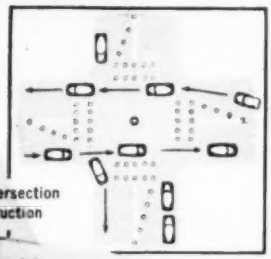
BARRICADE TRAFFICONE, height: 28" weight: 7½ lbs.

CHANNEL TRAFFICONE, height: 18" weight: 2¾ lbs.

Patent No. 2333273

36-page manual **illustrates correct traffic control techniques**

The 36-Page Trafficone System of Traffic Control Manual has been used for many years by engineers to obtain more effective traffic control. This manual was completed after many years of scientific research work. Let this manual be your guide.



Method for Intersection Center Obstruction

"GUIDE THE MOTORIST, DON'T CONFUSE HIM"

Striking red, yellow and black colors offer high daytime visibility

Eastern Distributor: Western Marketing Service, Weehawken, N. J.

Reflectorized paint provides brilliant traffic control for night time

Interstate Rubber Products Corporation
908 Avila Street, Dept. 115, Los Angeles 12, Calif.

Please send me 36-Page TRAFFICONE System of Traffic Control Manual and colorful literature.

Name_____

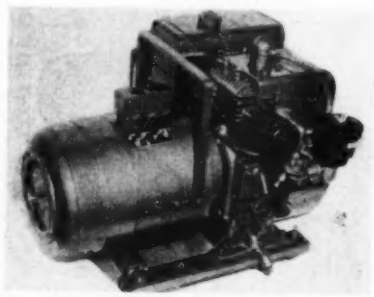
Company_____

Address_____ City_____ State_____

Company Introduces New Generators

Generating standard 60-cycle AC current, the new lighting plants introduced by this company weigh only 146 pounds, and are equipped with rubber-mounted isolators, receptacles, and carrying handles.

These generators are self-excited, 2-pole design, and are directly attached to the engine crank shaft. The 1,350 watt 9FB Briggs and Stratton engine is aircooled and, according to manufacturers' reports, will run on kerosene.



New plant generates standard 60- cycle AC current.

For those who wish to operate the plant in this way, the engine is arranged with a 2-compartment tank that starts on gasoline and runs on kerosene.

Designed by the Katolight Corp., Box 491-25, Mankato, Minn., the new series also features 650- and 2,000-watt plants. For detailed information, write the company direct, or take advantage of the Post Card located for your convenience on the colored page in this section. Circle No. 183.

About People you know or should know

Admiral Curtis S. Smiley is probably the most decorated man on the executive staff of the **Sterling Engine Co.,** Buffalo, N. Y. The retired Rear Admiral who joined Sterling recently as assistant to company president, Robert Russell, has a 30-year service record with the U. S. Navy. He's been awarded the Distinguished Flying Cross, the Commendation Ribbon, and the Bronze Star Medal.

Curtis S. Smiley

At the time of his retirement, Admiral Smiley served as Chief of Staff, Commander, Eastern Sea Frontier Hdqs., N. Y. C. Another Sterling appointment, we learned, is W. A. MacDonald, new executive vice-president. He first entered the firm as sales manager in 1951, later becoming vice-president in charge of sales.

Confronted with the task of choosing a new sales manager, the **Good Roads Machinery Corp.,** Minerva, Ohio, turned to its own sales department, and selected Roy C. Kuehneman to fill the post. Mr. Kuehneman, as those who've had dealings with the company know, has been with Good Roads for the past 11 years, eight of which have been spent in the sales department. He'll now take over responsibility for all of the department's activities, including distributor relations.

J. R. Thomas who has been away from his home state, Pennsylvania, for the past 10 years, will return there shortly to manage the Pittsburgh office of **Process Engineers, Inc.,** San Francisco, Calif. Mr. Thomas last resided in Spokane, Wash., where he was connected with the **Kaiser Aluminum and Chemical Corp.**

When E. E. Hoskins took over the presidency of **William Miller Instruments, Inc.,** recently, he made a number of changes in the firm's management set-up. These changes include the appointment of George W. Downs as vice-president and chief engineer; Edwin M. Graham, vice-president and treasurer; Charles T. Munger, secretary; Rex Welch, general sales manager; and Paul Ashway, production manager. Raymond C. Olesen was Mr. Hoskins' choice for senior development engineer; John F. Kalback, development engineer; Paul A. Dennis, research engineer, and Donald F. Hydrick, industrial engineer. Specialists in the development of scientific instruments, the William Miller organization is located in Pasadena, Calif.

E. E. Hoskins

Dave Milligan, a familiar name in the tractor industry, has been appointed vice-president in charge of sales for the **American Tractor Corp.,** Churubusco, Ind. Many of us have read the new official's numerous articles and books on earth moving. Others remember him from his three-year association with **Harry Ferguson, Inc.,** a period when that firm more than doubled its sales volume.

Dave Milligan

District managers for the **Gamewell Co.,** Newton Upper Falls, Mass., must have well-rounded engineering backgrounds to qualify for the post. The company's newest district manager, Robert Lassell, for instance, has been connected with Gamewell's Testing, Drafting, and Laboratory Depts., and has done a great deal of field work with the firm's Engineering Dept. He'll now take charge of Gamewell operations in the Southwest, with offices in Dallas, Texas.

Scheduled to direct the sales activities of the **Luther Corp.,** Williams Bay, Wis., is Gray Roloson, a one-time member of the Scintilla Magneto Div. of **Bendix Aviation Corp.** Appointed by Luther president, Robert F. Meyer, the new sales manager expects to organize a nationwide sales distribution program to handle the Luther chain saw.

A number of new area sales managers have been announced by the **Barber-Greene Co.,** Aurora, Ill. The first of these is Edward J. Curtin who'll head company sales in New England, New York State, and portions of New Jersey. Locating in Boston, he'll replace Earle F. Lamprey who is scheduled to supervise B-G exports in New York. Another new sales manager, Kentner W. Shell, assumes charge of B-G's No. 2 Area, with headquarters in Washington, D. C. He succeeds Ralph H. Dano, who moves over to the firm's Area No. 4 office in Aurora, Ill. Bernard E. Linstrom, former manager in Aurora, has been reassigned to head the new Market Development Section of Barber-Greene's sales force.

Nordberg Mfg. Co., Milwaukee, Wis., has appointed H. J. Feichtmann district manager of its Heavy Machinery Div. He'll serve Nordberg customers in Northwestern Wisconsin, Minnesota, North and South Dakota, Wyoming and Eastern Montana.

From our roving correspondent comes word that the **Flexible Sewer Rod Equipment Co.,** Los Angeles 34, Calif., has chosen Frank Kloepfer and Fred White of the **Flexible Tool Co.,** New York 17, N. Y., to represent the firm in New Jersey, the eastern portion of Pennsylvania, Maryland, Delaware, and Long Island, N. Y. This entire territory was formerly covered by James Maskell.

Two new district representatives, Jack C. Bever and Dwain Richey, have been appointed by **The Frank G. Hough Co.,** Libertyville, Ill. The former will take over for Hough in the District of Columbia, Maryland, Virginia, West Virginia, and the Carolinas, while Mr. Richey travels in Arkansas, Louisiana, Oklahoma, Texas, and New Mexico.

A similar announcement, this time from the **Jefferson Electric Co.,** Bellwood, Ill., concerns the appointment of a new regional field sales representative, John G. Stanwood. Mr. Stanwood is expected to represent the firm in the sale of transformers, fuses, and solenoids in the Baltimore area.

John G. Stanwood

"America's Street Lighter Retires," was the provocative heading of a recent communication from the **General Electric Co.,** Schenectady 5, N. Y. This "Street Lighter," we learned, is none other than John E. Bock, who in his 43 years with the company has developed the isocandle, the isolux chart, and many other tools so necessary in street-lighting research. Mr. Bock is credited with spearheading a standard method of lighting classification. He originated G-E's aiming charts for floodlighting installations first used in New York's Yankee Stadium. News from G-E's Electronics Div. in Syracuse, N. Y., announces the organization of the newly formed Commercial Equipment Dept. into three product units. General managers of the various product operations are Paul L. Chamberlain, in charge of broadcast equipment; H. Brainard Fancher, to head germanium products; and Harrison VanAken, Jr., general manager of communications equipment.

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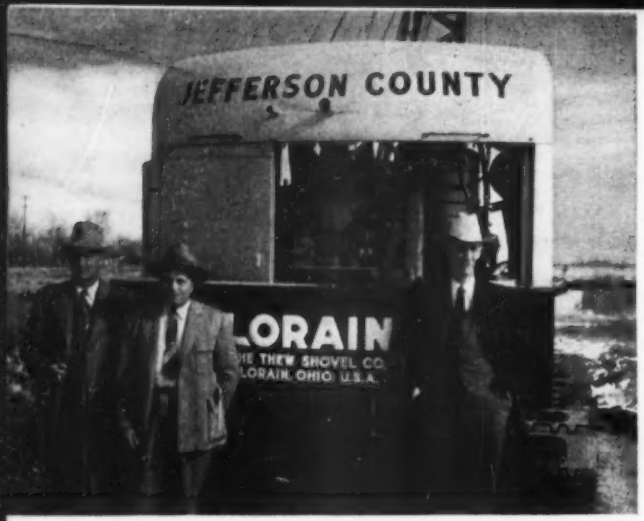

Jefferson County Commissioners, left to right, Walter True, Emil M. Schneider, and George S. Grun, shown with their Caterpillar-powered Lorain dragline. Leading manufacturers can supply Caterpillar power in their equipment.

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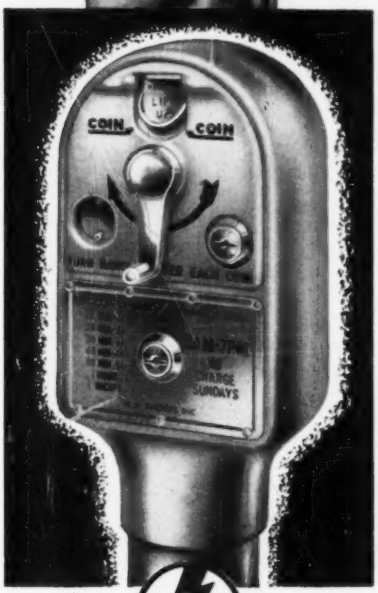

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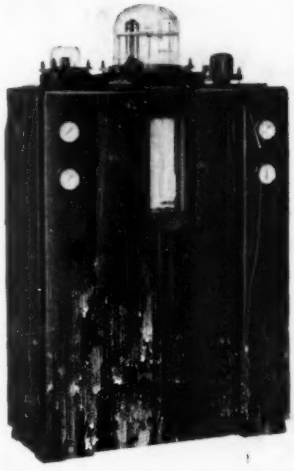

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